

2025 PROSPECTUS

CENTER FOR SPATIAL LITERACY

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WELCOME MESSAGE

I am thrilled to extend a warm and heartfelt welcome to you as you consider embarking on your educational journey at our College. I am privileged to introduce you to the captivating world of Geographic Information Science and Technology (GISc&T), a field that merges cutting-edge technology with the art of understanding our world from a spatial perspective.

At Esri South Africa College, we believe in the transformative power of education. GIS is not just a tool; it's a way of thinking that enables us to comprehend the intricate relationships between people, places, and data. Our programme is designed to equip you with the skills and knowledge to analyse complex spatial information, solve real-world problems, and make informed decisions that shape our communities and the environment.

As you peruse this prospectus, you will discover a curriculum that blends theory with hands-on experience, fostering a dynamic learning environment. Our esteemed faculty members, who are experts in the field, are committed to guiding you through your academic journey and helping you unlock your fullest potential.



ABOUT US

Esri South Africa Pty Ltd is a registered Private Higher Education Institution in terms of the Higher Education Act, 1997 (Act No.101 of 1997) with a registration number (2018/HE07/001).

Esri South Africa College strives to offer a wide range of academic programmes and short courses focusing on Geographical Information Science and Technology (GISc&T) that address the educational gap in the geo-information industry of Southern Africa.

Mission

The College strives to be a proudly African college offering a wide range of academic modules and programmes in GISc&T that will address the educational gap in the geo-information industry of Southern Africa.

Vision

To offer an industry-leading and aligned Diploma in Geoinformation Science and Technology.



OUR GOALS

Geographic information science is our passion, and our guiding philosophy centers on the promotion of lifelong learning. We take great pride in offering a unique platform that offers professionals the opportunity to advance their knowledge and skills:

Our educational programme aims to provide a platform that:

1. Provides flexible learning choices:

The college offers a variety of delivery methods such as online, inperson, and blended learning to cater to students' different learning styles and preferences. It also provides flexible scheduling options to allow students to balance their education with other commitments.

2. Builds capacity in the GIS industry:

Through our established industry partnerships, we provide students with real-world experience. This ensures that our curriculum remains closely aligned with the ever-evolving GISc industry.

3. Embraces prior learning:

We value and recognise the prior learning and experiences of students by granting them an opportunity to acquire credits towards theirw qualification. This approach not only enhances accessibility to education but also helps students to accelerate their academic journey, completing their studies more efficiently.

4. Enables Professional Registration:

Our institution provides students with the knowledge and skills necessary for professional registration with relevant industry bodies. This enhances their employability and career prospects; it also provides them with opportunities to advance within the geospatial field.



WHY STUDY WITH US?

1. Professional Registration

Candidates who wish to gain a cutting-edge GIS qualification that is aligned to both local and international industry standards. Candidates who wish to register with the SAGC, including professionals already established in the industry seeking to advance their careers opportunities.

2. Flexible Learning

The programme offers a credit-based learning system where students select modules each semester. There are two semesters: January to June and July to December. Full qualification seekers register at the start of each semester, while those pursuing individual modules can register whenever they are offered.

3. Relevant Qualification

We place you at the centre of your education by offering small classes to maximize interaction with the lecturers which promotes greater comprehension, outcomes, and independent thinking. Our curriculum is credible, technologically advanced, and practical, and it provides you with internationally renowned skills.



WHAT IS ACCREDITATION?

Accreditation guarantees that all qualifications offered by institutions have undergone thorough quality assurance by a relevant quality assurance body. This is done to protect the public from unscrupulous educational institutions. As outlined in the Higher Education Act (Act No. 101 of 1997), both public and private institutions are mandated to exclusively provide qualifications that have received accreditation from the Higher Education Quality Committee (HEQC) of the Council for Higher Education (CHE).

Why is accreditation important?

Accreditation ensures that institutions offering qualifications or learning programmes meet minimum required quality standards. Candidates must ensure that the programme for which they are registered meets the following criteria:

- the institution is registered with the Department of Higher Education and Training (DHET);
- the qualification is accredited by the relevant quality councils;
- is registered with SAQA; and
- aligns with the HEQSF

What is the difference between registering for qualification and non-qualification purposes?

A qualification, according to SAQA, is a formal recognition of the achievement of the required number and range of credits, as well as other requirements at specific levels of the NQF.

When a candidate enrols to complete the programme, the College recognises such a candidate as a full-qualification student. Candidates who enrol in individual modules such as Geography, Mathematics, Statistics, Physics, and GISc Ethics and Law, to name a few, are considered non-qualification students.

LEARNING METHODOLOGIES

At Esri South Africa College we recognise that achieving a qualification through distance learning is a symbol of dedication and tireless efforts. Earning a qualification from Esri South Africa College is no different – it requires an equal, if not greater, level of dedication and discipline. Over the past few years, the College has firmly established itself as a renowned institution dedicated to advancing geospatial education.

Learning at Esri South Africa College is built on mutual commitment. This commitment entails the pursuit of knowledge and understanding, the cultivation of technical expertise and skills, and the adoption of positive values and attitudes.

As we continually strive to evolve and refine our institution, a key focus remains on developing the expertise and qualifications of our staff. This ensures that our lecturers possess the necessary skills to deliver high-quality GIS education. The quality of our graduates serves as a testament to our dedication to excellence, and the acquisition and application of knowledge.

Our educational approach is characterised by collaboration, interactive learning and a supportive environment that extends beyond the confines of the classroom. Our programme is offered in English and follows industryapproved curricula, equipping students with future-proof skills highly valued by companies.

Our comprehensive strategy combines innovative approaches to promote participation, active learning, and readiness for the technology-driven workplaces of tomorrow. We provide a platform that supports present educational goals while also paving the foundation for future professional goals. During your time with us, you will develop crucial skills such as critical thinking, goal setting, inventive problem-solving, teamwork, and effective communication skillsattributes highly valued by employers.



Student Support:

Instructor-led Courses
Integrated Learning Platform
Automated Student Reminders
Technical Support

ADMISSION REQUIREMENTS

South African Senior Certificates achieved prior to 2008

If you have not complied with the minimum statutory matriculation requirements for admission to the diploma, please contact one of our Student Advisor for alternative paths of admission.

South African Senior Certificates achieved after 2008

Minimum admission requirements for the diploma qualification:

You must pass at least 6 out of 7 subjects with a minimum of:

- 50-59% or Level 3 for your Home Language;
- 40-49% or Level 3 for your Additional Language;
- 50-59% for Mathematics;
- 40-49% for Physical Sciences;
- 40-59% or Level 2 for two other subjects

Calculation of APS points

In order to gain access to the Diploma in GI S&T, applicants are required to have achieved an APS score of 21 on their National Senior Certificate (NSC). The subjects at the NSC level must include Mathematics, Physical Science and English.



ACADEMIC INFORMATION

Duration of Studies

Full-time students can complete the Diploma in GISc&T within a three year timeframe, while parttime students can finish the programme within a maximum of five years. If a student exceeds this five-year duration, they must reapply for admission to complete the Programme. In exceptional cases, the student may be required to retake certain modules to ensure they remain exposed to the latest trends and technologies in the field.

Curriculum

The Diploma in Geoinformation Science and Technology is designed for students aiming to build careers in the Geo-Information Science and Technology sector. The program equips learners with both theoretical and practical skills, including the collection, editing, analysis, and sharing of geospatial data, as well as the planning and execution of GIS projects.

Upon successful completion, and after gaining the required work-integrated experience, graduates will be eligible to register as GISc Technicians with the South African Geomatics Council (SAGC).

Graduates will demonstrate the following competencies:

- Solve industry-related geomatics problems using GISc&T principles, mathematical knowledge, and scientific methods.
- Design and develop systems or processes in line with industry standards and legislation.
- Conduct investigations, analyze data, and interpret results to form valid conclusions.
- Apply modern tools and technologies, including predictive modeling, to address practical challenges.
- Communicate effectively, collaborate in teams, manage projects, and adhere to professional ethics and standards.

Programme Delivery

Year 1 (Level 1) starts with the basics of Information Technology, Geography and GIS. Mathematics, Statistics and Physics are also included in the first-level modules and will be offered as applied sciences.

Year 2 (Level 2) candidates learn about working with spatial data, data structures, data quality and map design. In addition, candidates will learn how to capture data using GPS or conventional surveying instruments.

Year 3 (Level 3) is more challenging and will focus on topics in advanced analysis, remote sensing, terrain analysis and some programming. Candidates will also have the opportunity to demonstrate their knowledge gained, by designing and implementing a practical GIS project.

Contact with Lecturers

Students have several avenues to interact with their lecturers; during practical workshop sessions or virtually through Instructor-led Online Training (ILOT). Students can utilise the messaging options available within the Learning Management System (LMS) to communicate with their lecturers.

At the start of each module, comprehensive module information, and essential study resources are readily accessible via the LMS. All module-related questions must be placed on the discussion forum; this allows students to engage in discussions more conveniently, and it ensures that queries are addressed to.. the benefit of the entire class. Students are encouraged to participate in class discussions. The lecturer is responsible for monitoring the discussion forum and promptly responding to queries daily basis. The lecturers' email addresses are listed on the LMS and should be used for private, module-related inquiries only. Any emailed queries to the lecturer may be shared on the discussion forum board and answered to the benefit of the entire class

Academic Calendar

The module schedule will be made available online. It is recommended that you check this timetable in advance to organise your academic year.

The timetable can also be obtained by contacting the College.

<u>college@esri-southafrica.com</u>011 238 6300

QUALIFICATION

National Diploma:

Geo-information Science & Technology

General NQF 252 Minimum Maximum Level 6 Credits 3 years Details

Modules

Level 1

- Introduction to Information Technology ٠
- Introduction to Geo-information Science ٠
- Introduction to Human, Physical and ٠ Environmental Geography
- Map Use and Evaluation •
- Applied Mathematics for GISc •
- Physics for GISc •
- Basic Statistics for GISc •

Level 3

- Introdution to Programming ٠
- GISC & T Ethics and Law
- Analytical Methods
- Advanced Analysis and Map Design •
- Terrain Analysis
- Data Considerations for Map Design ٠
- **Remote Sensing**

Level 2

- Spatial Data Models •
- **Projections and Coordinate Systems** ٠
- Data Quality and Standards
- Introduction to Database Management Systems

5 years

- GPS and Land Surveying
- Principles of Map Design
- Data Manipulation

Electives

- Advanced Analysis and Map Design
- **Analytical Methods**

LEVEL 1 MODULE DESCRIPTIONS

Introduction to Information Technology

Online & Practical

10 Credits

5 Weeks

Code IIT5 N

NQF Level 5

This module introduces students to information technology and computing systems. It discusses the history and theory of information systems, as well as the practical application of technologies. The student will be introduced to computer software, hardware, and networking technologies, as well as information security, privacy, and social issues that arise because of information technology. The practical applications of productivity software, database management, and future trends in information technology and geographic information systems.

Learning assumed to be in place: None

Note: Please keep in mind that this module may have an exemption examination. A student will only be allowed to take the exemption test once. If the student fails the examination, he or she must retake the module and the exam. Students who wish to take the exemption exam must apply at least one month ahead of time.

Introduction to Geo-information Science

Online & Practical

12 Credits

6 Weeks

Code GIS5

NQF Level 5

This module delves into the history of Geographic Information Science and the broader applications of GIS technology. In this module, you will learn the fundamental concepts that underpin geographic data and GIS technology, as well as gain hands-on experience using GIS technology to visualise, collect, create, and edit data, change coordinate systems, and explore real-world features, analyse data to answer geographic questions and create new information, and share maps, data, and other resources.

Learning assumed to be in place: Introduction to Information Technology (IIT5)

Note: This module assumes that the student has no previous knowledge of GIS theory or any GIS software.

Introduction to Human, Physical and Environmental Geography

 Online & Practical
 10 Credits
 6 Weeks
 Code GEO5
 NQF Level 5

This module is intended to serve as an introduction to man's physical geography and environmental management processes related to both South Africa and other global regions. It provides knowledge and skills to understand climatology, geomorphology, hydrology, human geography, population geography, and economic geography. The knowledge provides a broader understanding of global and local patterns and the natural processes involved in landform formation, weather systems, and ecosystems through the lens of GISc and the relationship between the two fields.

Learning assumed to be in place: None

Map Use and Evolution

Online & Practical 10 Credits

6 Weeks

Code MUE5

NQF Level 5

This course explores geographic studies with a focus on spatial representation through maps, traditionally created by specialists. With the advancement of Geographical Information Systems (GIS) technology, non-specialists can now create maps. The module covers both theoretical and practical aspects, introducing students to map creation, use, analysis, interpretation, and evaluation. The practical component involves traditional hardcopy maps, 1:50,000 topographical maps, 1:10,000 orthophoto maps, and their digital counterparts for South African locations. The theoretical skills acquired are applicable to analysing and evaluating South African topographic and orthophoto maps, contributing to GIS comprehension.

Learning assumed to be in place: Introduction to Human, Physical and Environmental Geography (GEO5)

Note: This module assumes that the student has no previous knowledge of GIS theory or any GIS software.

Applied Mathematics for GISc NQF Level 5 12 Credits 10 Weeks Code MAT5 Mixed This module has a strong emphasis on mathematical thinking, fluency, and an understanding of how math principles may be used to efficiently solve GIS-related challenges. This module will cover differentials, integral calculus of one variable functions, partial derivatives, solving linear and nonlinear equations, trigonometric functions, conic sections, vector geometry, matrix algebra, linear transformations, and differential geometry. Learning assumed to be in place: None Note: Duration of workshop: 5 days (Examination to be written at the end of the module). **Physical Science for GISc** Code PHY5 NQF Level 5 12 Credits Mixed 10 Weeks This module has a strong theoretical component that is supplemented by some practical work.

At the end of this module, you should have a broader understanding of physical science concepts and how they are applied in GIS and remote sensing work. Concepts covered in the module will be: Simple harmonic motion; motion of mechanical waves, wave speed, interference, standing waves and resonance; ray and wave models of light and its reflection, refraction, and interference; gravitational fields and potential energy; electric fields and potential energy; electric potential; magnetic fields.

Learning assumed to be in place: Applied Mathematics in GISc

Note: This module has a compulsory 5-day workshop. Students are required to attend the workshop before they sit for the exams. It is strongly recommended that a student first completes Applied Mathematics in GISC (MAT5) before enrolling for this module.

Basic Statistics for GISc

Mixed

12 Credits

10 Weeks

Code STA5

NQF Level 5

This module has a strong emphasis on understanding the statistical processes which are: Data acquisition design and planning, Data collection, Data analysis, Conclusions and recommendations based on analysis results. The student will learn basic statistical functions, including regression, distributions, error theory, correlation, and sampling. This module includes the calculation of probability, mean standard and deviation. This module will be applied in the GISc environment, and it includes 5 days practical workshop.

Learning assumed to be in place: Applied Mathematics for GIS

Note: Note: This module has a compulsory 5 days workshop. Students are required to attend the workshop before they sit for the exams. It is strongly recommended that a student first completes Applied Mathematics in GISC (MAT5) before enrolling on this module.

LEVEL 2 MODULE DESCRIPTIONS

Spatial Data Models

 Online & Practical
 12 Credits
 6 Weeks
 Code SDM6
 NQF Level 6

This module focuses on the raster and vector data models used to represent real-world features in a GIS. The representation of geometric primitives in the spaghetti model, the topological model and the network model are discussed. The module includes different compression methods for raster data. It is also important to take note of the use of linear referencing and object-orientated models in a GIS.

In the practical component, you will learn how to set up a data capture environment and use the appropriate feature type when capturing data. You will also learn the basic theory and principles of spatial data models and structures that are used to capture data in a vector or raster GIS. It is expected that the candidates will complete a project exercise in their own time and submit the result for evaluation.

Learning assumed to be in place:

- Introduction to Geo-information Science (GIS5)
- Introduction to Information Technology (IIT5)
- Map Use and Evaluation (MUE5)

Projections and Coordinate Systems

Online & Practical

12 Credits

6 Weeks

Code PCS6

NQF Level 6

The foundation of understanding the concepts of spatial reference systems begins here. This module covers the concepts of the Earth's shape, latitude and longitude, map projections; distortions and coordinate systems and datums. Participants learn how to use the Spatial Reference System to align data and customise and apply their spatial reference transformations to convert and align data between different geographic coordinate systems.

Learning assumed to be in place: Introduction to Geoinformation Science (GIS5) or equivalent knowledge.

Data Quality and Standards

Online & Practical

12 Credits

6 Weeks

Code DQS6

NQF Level 6

Data quality elements specify a particular aspect of a dataset which should be used and accurate. The quality of GIS data is comprised of various components. These components, as defined by the International Organisation for Standardsation (ISO), include completeness, logical consistency, spatial accuracy, thematic accuracy, temporal quality, and data usability. This module will teach you both theoretical and practical skills for evaluating the quality of any spatial data set. You will also learn the significance of GIS standards and effective communication skills.

Learning assumed to be in place: Introduction to Geo-information Science (GIS5).

Introduction to Database Management Systems



The second critical component of GIS is data management. The student will learn about the differences between data and information, as well as the functionality of various database management systems, in this module. Explore the relational database model and its functionality. Learn how to create a simple relational database model for use in a GIS and about other database models.

The practical component goes in-depth into the fundamental concepts and skills required to efficiently create a spatial database, populate it with data, and realistically model the realworld spatial relationships inherent in your data. The unique spatial database features that help ensure data integrity over time are discussed, as well as why the spatial database is the preferred format for storing and managing geographic data. The module concept applies to both file-based and multiuser spatial databases.

Learning assumed to be in place: Data Quality and Standards (DQS6) or equivalent knowledge.

GPS and Land Surveying

Online & Practical

14 Credits

6 Weeks

Code GPS6

NQF Level 6

The position is the fundamental element of any geographic data. Like the letters that make up these words, positions are the building blocks from which features are constructed. A property boundary, for example, is made up of a set of positions connected by line segments. This module explores the basic principles of land surveying and global positioning systems (GPS). Learn about land surveying instruments and a GPS calculates the position and what the benefits of each instrument are. How and why positional errors may occur when measuring a position with a GPS.

In addition, learn more about South African land laws, the cadastral survey system and the Land Survey Act and regulations. Conduct a field data collection project where you prepare data and maps for use in the field, edit data to reflect real-world conditions, and get updated data back into your GIS database when fieldwork is completed.

Learning assumed to be in place: Introduction to Geo-information Science (GIS5)

Principles of Map Design

 Online & Practical
 14 Credits
 8 Weeks
 Code PMD6
 NQF Level 6

Map design is critical in communicating results and decisions. This module covers the fundamental principles of map design. How to create visually appealing maps that are easy to interpret and are appropriately designed for their audience and delivery medium. How to create high-quality maps for print and online use by following a standard cartographic workflow. How to source maps from a variety of repositories and how to use appropriate colours, symbology, and typography to create a visually appealing map. These principles will be applied to twodimensional maps, three-dimensional maps, web maps, and thematic maps. You will also discover how to incorporate maps into a report.

Learning assumed to be in place:

- Data Quality and Standards (DQS6) or equivalent knowledge.
- Introduction to Geo-information Science (GIS5) Introduction to Information Technology (IIT5) Map Use and Evaluation (MUE5)
- Data Quality and Standards (DQS6)
- Projections and Coordinate Systems (PCS6)

Data Manipulation

Online & Practical

10 Credits

6 Weeks

Code DTM6

NQF Level 6

After the successful completion of this module, you should be able to explain the different spatial data models used to store GIS data on a computer. You should be able to outline the potential inaccuracies that may arise when converting between the different data models. You will also understand how attribute data tables are linked to spatial data. In addition, you will learn the difference between CAD and GIS. After the successful completion of this module, you should understand the different vector, raster, and attribute data transfer formats.

You will be able to integrate different data formats from various available GIS software packages. You will also be aware of possible pitfalls that may arise when integrating data with various formats. In addition, you will learn how to use the data interoperability tool to import and export data sets to various formats.

Learning assumed to be in place:

- Spatial Data Models (SDM6)
- Projections and Coordinate Systems (PCS6)
- Data Quality and Standards (DQS6)

LEVEL 3 MODULE DESCRIPTIONS

Learning assumed to be in place to complete all Level 3 Modules:

- All first-year (Level 1) modules or equivalent knowledge
- All second-year (Level 2) modules or equivalent knowledge

Introduction to Programming

Online & Practical

14 Credits

8 Weeks

Code IPR6

NQF Level 6

Python scripts can reduce the time spent on complex or repetitive tasks, enabling GIS users to be more productive. This module covers the theoretical aspects of the following topics in Python: data types and structures, numbers, variables and naming conventions, statements and expressions, string literals, lists and tuples, objects, functions and methods, paths, modules, conditional statements, and loop structures. Several assignments will need to be completed and a theory exam written at the end of the module. You will also learn how to share your Python scripts, so your key GIS workflows are accessible to others.

GISC & T Ethics and Law



This module focuses on the important role of ethics in the GISc industry. Topics such as professionalism, ethics and issues that may arise in the workplace are introduced. This module will demonstrate how some acts pertaining to the GIS industry, including the Geomatics Profession Act, Parts of the Constitution of the Republic of South Africa, the Spatial data infrastructure Act and the Promotion of Access to Information Act to name a few, can guide you when posed with challenging decisions.

In addition, the practical workshop emphasizes the importance of metadata and some aspects of business and project management. You will also learn how to apply different acts when sharing data among organizations. How to turn your authoritative GIS data, workflows, and maps into services that can be: published online, on a server, or a portal; easily embedded in web maps and websites; accessed by desktop, web, and mobile applications; and deployed to servers on secure internal networks.

Analytical Methods

Online & Practical

18 Credits

6 Weeks

Code ANM6

NQF Level 6

The true power of GIS lies in its ability to perform analysis. Spatial analysis is a process in which you model problems geographically, derive results through computer processing, and then explore and examine those results. This type of analysis has proven to be highly effective for evaluating the geographic suitability of specific locations for specific purposes, estimating, and predicting outcomes, interpreting, and understanding change, detecting important patterns hidden in your data, and much more.

This module teaches standard workflows that can be applied when analysing GIS data. Working with a variety of data and GIS tools, you will perform different types of analyses to efficiently solve spatial problems. After the successful completion of this module, you should know all the different vector and raster methods analysis that can be done in a GIS. You should also be able to plan and develop spatial analytic model and build the model in a GIS. You will also learn how to effectively communicate by writing a report.

Advanced Analysis and Map Design

Online & Practical

16 Credits

8 Weeks

Code AMD6

NQF Level 6

Advanced analysis and Map Design entails interacting with a collection of data and maps related to answering a specific geographic question, allowing you to visualize and explore geographic information and analytical results that pertain to the question. This allows you to extract knowledge and insights from the data. This combines the geographic perspective with statistical data in the attributes. It is an iterative process of interactive exploration and visualisation of maps and data. Students learn how to prepare and integrate spatial data into advanced analysis workflows, visualise the data using cartographic techniques as well as identify and interpret spatial patterns.

Terrain Analysis

Online & Practical

12 Credits

6 Weeks

Code TRA6

NQF Level 6

In this module, you will learn the theoretical aspects of the different terrain analysis methods that can be used to analyse a surface. You will learn when to apply the different terrain analysis methods and how to combine these to do a suitability analysis. The different terrain analysis methods include contours, slope, aspect profile plots and hydrologic functions. You will also learn how friction surfaces can be used to determine a cost path between two points. During the practical sessions, you will learn how to interpolate a surface from point measurements, generate different surfaces from a digital elevation model, calculate density from point data and perform visibility analysis.

In addition, you will also learn how geoprocessing models can be developed to do suitability analyses. In addition, you will learn the different concepts of spatial estimation, and cartographic models and how these can be used to solve complex problems. The student's written communication skills will be strengthened by submitting the assignments in the form of reports.

Data Considerations for Map Design

Mixed 16 Credits 14 Weeks Code DCM6 NQF Level 6

This module focuses on the compilation of new maps from scratch. The different sources of spatial and attribute data in South Africa are discussed. The student will have the opportunity to search for and acquire data from various sources on the internet. The influence of generalisation, map scale and projections are emphasised. For this module, you will have to study the use of GIS in any application field.

You will then plan and develop a project or system that must be executed successfully. The project must demonstrate that you can successfully apply your GISc skills to solve a real-world problem. This module also gives you the opportunity to present what you have learned during the programme by doing an oral presentation. Duration of the workshop: 2 days (Length of the workshop depends on the number of students).

				LEVEL 3
Remote Sensing	9			
Online & Practical	12 Credits	6 Weeks	Code RES6	NQF Level 6

The purpose of this module is to introduce you to the basic concepts, terminology, methods and products of satellite images and aerial photographs. You will learn the differences between and benefits of aerial and satellite images. You will also learn where to source remote sensing images in South Africa as well as how to do aerial triangulation. In addition you will learn the basics of analysing images for the use in a GIS.

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JOBS AND CAREERS

Why Study Geographic Information Science and Technology (GISc & T)?

- GIS&T professionals play a crucial role in addressing global challenges such as climate change, disaster management, and sustainable development. Your work can contribute to making informed decisions that positively impact communities and the environment.
- The skills you gain in GIS&T are transferable to various roles and industries. GIS&T graduates can work across various industries, including environmental management, urban planning, healthcare, logistics, finance, insurance, telecommunications, government and more. This versatility allows you to thrive in different career paths.
- The demand for GIS&T professionals is increasing as more industries recognise the value of spatial data in decision-making. This growth offers a wealth of job opportunities and career advancement potential.
- The field of GIS&T is at the cutting edge of technology, involving tools like remote sensing, satellite imagery, BIM, AI, data science, and spatial data analysis. Studying GIS&T allows you to develop innovative solutions using these technologies.

Jobs and Careers in GIS

Graduates with a diploma in Geoinformation Science and Technology from Esri South Africa College can pursue diverse and impactful career paths. These career paths reflect the versatility and applicability of a Diploma in Geoinformation Science and Technology, enabling graduates to contribute to a wide range of industries and societal needs. Some career paths listed may need further study in other areas such as Statistics, Climatology, Ecology, Town Planning etc.

Crime Analyst: Analysing crime data to forecast trends and support law enforcement agencies such as Police Departments and insurance companies.

Market Researcher: Using GIS to analyse sales data, recommend store locations, and forecast market trends in industries like banking, retail, and telecommunications.

Geospatial Military Specialist: Mapping troop movements, planning military interventions, and aiding in search and rescue operations for the military and intelligence agencies such as the the South African Defense Force.

GIS Analyst in Medicine: Mapping disease outbreaks and predicting health trends for health agencies and NGOs.

Transportation Planner: Planning new transport routes, managing traffic, and improving public transport systems for agencies like SANRAL and the Gautrain.

Researcher: Innovating GIS applications and remote sensing techniques in research organisations like CSIR and SANSA.

Cartographer: Designing and updating high quality maps for municipalities, private companies, and government agencies.

Disaster Manager: Predicting and managing natural disasters, assisting in emergency response for municipalities and parastatal organisations such as Eskom.

GIS Database Administrator: Maintaining spatial databases and providing technical support for private GIS companies and municipalities.

Remote Sensing Scientist: Using satellite imagery for environmental monitoring and 3D earth modelling, employed by agencies such as CSIR, SANSA, and military institutions.

Educator: Teaching the next generation in GIS, geography, and related fields at schools, universities, and private institutions.

GIS Specialist: Developing and implementing GIS solutions, perform complex spatial analysis, and manage GIS projects int the cooperate and government sector.

Insurance Analyst: Roles in managing risk can vary from risk management work in an actuarial context, to project work for a local council or environmental management company, to roles in the finance sector. The technical work of quantifying and mitigating risks can involve using GIS to map hazards, or, in an insurance context, developing models to project risks in a particular place, business or sector.

Data Scientist: The Data Scientist serves as a key technical resource for internal and external stakeholders that depend on spatial planning and analysis to effectively manage and implement Conservation South Africa's conservation priorities. **Built Environment Planner:** Use of GIS to achieve required stewardship, sustainability, and savings for the built environment. GIS technology can be exploited to provide key facility information for decision makers when they need it.

Ecologist: The Spatial Ecologist is responsible for developing and maintaining processes for efficient data collection and synthesis for a variety of projects focused on wildlife and vegetation monitoring and research, habitat restoration, and native seed production. They will also contribute to designing the implementing research and monitoring projects, splitting their time between office and field work.

Climate and Land Use Data Scientist: You will utilize a suite of GIS software, remote sensing, and related data to prepare and produce spatial data, imagery, maps, and other information for strategic land use planning and monitoring efforts. This includes helping to incorporate spatial planning and analysis into conservation decision-making and evaluation efforts.



INTERNATIONAL STUDENTS

Foreign students may apply for admission to Programme studies after their qualifications have been evaluated by the South African Qualifications Authority (SAQA). The candidate is responsible for having their qualifications reviewed by SAQA. In terms of SAQA: A foreign qualification is issued by a nationally recognised institution and forms part of the national education and training system of a country other than South Africa.

Foreign qualification is not:

- Professional membership or a professional designation.
- A certificate based on a short course; in-service training, a workshop or seminar, or workplace-integrated learning does not form part of the requirements to obtain a qualification.
- A South African qualification.

None of the above should be submitted as a foreign qualification to be evaluated by SAQA.

SAQA Contact Details

Evaluation of Foreign Qualifications call centre: 012 431 5070

Helpdesk: 086 010 3188

Foreign Qualifications Evaluation and Advisory Services: https://dfqeas.saqa.co.za/dfqeas/user/home

FINANCIAL AID

The College offers limited bursaries to candidates. Details are advertised on the institutions website. Candidates are advised to look for funding from several funding sources available throughout the year.

Bursaries

What you will be doing?

You will study towards a **Diploma in Geoinformation Science and Technology** while doing part time work at the company. You will stay abreast with the latest technology to ensure that you are 'industry ready' once you have completed your studies. During your studies, you will learn how to plan, build and implement geographic information systems and GIS projects. During your engagement with Esri South Africa you will attend 36 course modules

Who should apply?

All matriculants with a valid National Senior Certificate. The subjects must include Mathematics. You should have a minimum rating of (75 – 100%) for Mathematics.

What will be included in the bursary?

All your course fees will be covered by Esri South Africa for the duration of your studies. At the end of your studies Esri South Africa may consider employing you. Esri South Africa will also cover all the costs related to textbooks and study material needed to complete your studies. You will be responsible for your own accommodation and travelling costs.

See link below to the website:

https://www.esri-southafrica.com/gis-t-bursary/

Other Bursaries

Here is a brief overview of what each site offers.

These recourses can be invaluable if you are looking for financial support for your studies.

LGSETA: https://www.zabursaries.co.za/general-bursaries-south-africa/lgseta-bursary/

All Bursaries: https://allbursaries.co.za

Bursaries SA: https://bursaries-southafrica.co.za

Study Loans

Here is a detailed overview of the study loan options provided by each source: Eduloan: https://sastudy.co.za ABSA: https://www.absa.co.za FNB: https://www.fnb.co.za Nedbank: https://www.nedbank.co.za Standard Bank: https://www.standardbank.co.za

If you need more information on how to apply or specific requirements, visiting their websites or contacting their customer service can provide additional guidance.

Employer Funding

A confirmation indicating the acceptance of the quotation is required from the payment nominee. A payment nominee is normally an organization for which a prospective student works or a prospective student. An official Purchase Order (PO) is normally used by organizations. This is a commercial document, and the first official offer issued by a buyer to a seller indicating types, quantities, and agreed prices for products or services.

In some cases, the funder or employer issues a commitment letter. A commitment letter is a document issued by the funder/employer on the funder/employer's letterhead, committing to settle the student's fees. This letter must be addressed to the Registrar and must contain the following key information: student name & surname, student number, total amount payable, expected payment date, contact information of the person responsible for payment and the letter must be signed.

Bursary letter with the correct date, addressed to the institution, company's letter head, with contact person details and their signature attached, the amount as per the approved quotation or the amount the bursary is liable to pay, and payment date will be accepted.

STUDENT SUPPORT SERVICES

At Esri South Africa College, we are committed to ensuring that our students have all the support they need to succeed in their academic journey. We understand that your time with us is more than just about acquiring knowledge; it's about growth, development, and preparing for a fulfilling career in Geographic Information Systems (GIS). Our Student Support Services are designed to provide you with comprehensive assistance, whether you need academic guidance, career advice, or personal support.

Academic Support

Your academic success is our top priority.

We offer a range of services to help you excel in your studies:

- Extra lessons and revision sessions: We provide one-on-one extra lessons and group revision sessions on key topics such as GIS software, data analysis, and research methodologies. After lessons, students can consult their respective lecturers for the purposes of gaining more knowledge on the courses that they do.
- **Study Resources:** Access a wealth of online and offline resources, including textbooks, manuals, and interactive learning tools through our Thuto Learner Management System (LMS).
- **Technical Support:** Students have access to our dedicated Technical Support Department, which is available to assist with any software-related issues, ensuring that students have the necessary resources to succeed in their studies.

Career Development

Preparing you for the workforce is a crucial part of our mission.

Our Career Development services include:

• **Career Counselling:** Get personalised career advice from our student support centre. Whether you're looking to pursue your careers in the field of geographical information systems, or get registered with a professional body, we'll guide you every step of the way.

• Workshops and Seminars: Participate in workshops and seminars that build your skills, such as the SAGC Registration workshop, Migrating from ArcMap to ArcGIS Pro, Mastering ArcGIS sites and Understanding GeoAI in ArcGIS. Attend industry seminars to connect with potential employers and peers. Our seminars are led by industry experts to broaden your understanding of GIS and related fields.

Personal Support

We recognise that academic challenges can impact your performance.

Our Student Support services are here to help you navigate those challenges:

• **Counselling Services:** Our student support centre is available to provide counselling services with respect to such matters as courses to take, study skills, time management skills etc.

Health and Safety Services

- **Emergency Response:** Our lecturers are trained in first aid, ensuring that immediate care is available in case of an emergency during classes or other college activities.
- Safety Drills and Emergency Procedures: We conduct regular safety drills, including fire and evacuation drills, to ensure that all students and staff are well-prepared to respond calmly and efficiently in an emergency.
- **Campus Security:** Our premises are monitored by a professional security team 24/7. We have strict access control measures and CCTV surveillance to ensure the safety of everyone on our premises.

Orientation Programme

- New Student Orientation: At the beginning of each academic year, we host a comprehensive orientation program for all new students. This programme introduces you to the college's academic structure, key policies, and available resources.
- **Thuto LMS Training:** Since our Thuto Learner Management System (LMS) is a crucial tool for your studies, we offer dedicated training sessions to help you navigate and use the platform effectively.
- Workshops and Info Sessions: We offer various information sessions through the year, including SAGC Registrations, guest lecturer sessions and customer seminars. These sessions are designed to equip you with the skills you need to succeed from day one.

INSTITUTIONAL LEADERSHIP

Management



Head of College Mokhine Maake mmaake@esri-southafrica.com



Registrar Queen Mofokeng qmofokeng@esri-southafrica.com



Programme Coordinator Tendai Dupwa tdupwa@esri-southafrica.com

Administrative Team



Examination Officer Seipati Petlo spetlo@esri-southafrica.com



Academic Operations Eussel Modika emodika@esri-southafrica.com



Library Services Refiloe Msibi rmsibi@esri-southafrica.com



Student Services Kayleigh van der Merwe *kvdmerwe@esri-southafrica.com*



Student Advisor Patricia van Schalkwyk pvanschalkwyk@esri-southafrica.com



Admin Assistant Nokubonga Nkosi nnkosi@esri-southafrica.com

GENERAL TERMS AND CONDITIONS

1. SERVICE PROVIDER DETAILS

1.1. The service provider Esri South Africa Pty Ltd, is a registered Private Higher Education Institution with the Department of Higher Education in accordance with the Higher Education Act (No. 101 of 1997), registration number is **No. 2018/HE07/001.**

1.2 The qualification is accredited by the Education Quality Committee of the Council for Higher. Thequalification can be found in the South Africa Qualifications Authority qualification database identified by the **SAQA ID** number **101442**.

2. CONFIRMATION OF BOOKINGS

2.1. A booking will only be made, once a student has:

- Been accepted to study by the Academic Head
- Completed all required module registration forms
- Payments have been made and confirmed

2.2. The College will confirm bookings via e-mail.

3. PAYMENT TERMS

3.1. Invoices will be processed on request or completion of the module.

3.2. Payment of module fees is to be submitted to college administration 5 days before the commencement of the module unless registration is accompanied by an official purchase order.

3.3. Payment will only be assigned for use in future modules if cancellation is made at least 5 days before the start of the module.

3.4. Terms for corporate clients, with prior arrangements, are 30 days from the date of invoice.

3.5. Interest will be charged on outstanding accounts.

4. EXCLUDED FROM PRICING

4.1. All pricing is exclusive of travelling, accommodation, and subsistence allowances.

5. REGISTRATION AND MODULE ATTENDANCE

5.1. Registration takes place before the commencement of the module date.

5.2 Students are requested to complete the Attendance register each morning on arrival.

5.3 Training, presentations, and workshops start promptly at 8:30 and finish at approximately 16:30. These times may be extended due to customized modules or special arrangements.

5.4 Students may not be accompanied by anybody, except for Students who are physically or otherwise impaired and/or where prior arrangements have been made.

5.5. No animals are allowed inside the classroom, except for guide dogs.

6. RE-SCHEDULING OF MODULES

6.1. Dates for re-scheduling of modules should be submitted in writing, to the Head of College, at least 5 working days before module commencement. In the event that this not happening, please refer to the Module cancellation (7).

6.2. The College has the right to cancel or postpone a module if:

- The required number of people did not register for the module.
- A trainer or presenter is not available or has fallen ill and cannot be replaced on short notice
- There are no registrations for the module on the commencement of the theory component, including the mainstream.

6.3. In the unfortunate event of the cancellation or postponement of a module, the fees paid for that module will be carried over to the next offering of the module.

6.4. Esri South Africa College cannot be held responsible should a student:

- be booked on the wrong module by the Client or an authorized employee,
- be on an inappropriate level or version,
- not have the required prerequisites as stated in the relevant module outlines.

7. MODULE CANCELLATIONS

7.1. All cancellations must be made in writing.

7.2. Cancellations must be made no less than 5 working dates before the module.

7.3. Students not arriving for a module will be charged the full module price.

7.4. Refunds of any monies resulting from the above will be assigned for use in future diploma modules.

7.5. Once a module has been accessed by a student, the module may not be cancelled nor refunded.

8. STUDENTS' RESPONSIBILITIES

8.1. The College reserves the right to exclude Students from attending a module due to disorderly conduct. No offensive or discriminatory language and/ or behaviour will be tolerated.

8.2. The College reserves the right to exclude Students from attending a particular module due to prerequisites not being met. Refer to the prerequisites in the module descriptions.

8.3. The College reserves the right to exclude Students from attending a particular module should a student arrive late. The cut-off time is 30 minutes after training, presentations or workshops have started unless an arrangement for exceptional cases has been made with management beforehand, this is to avoid disrupting the class.

8.4. The College cannot be held responsible where negligent behaviour has resulted in loss or damage to the property of the student.

8.5. It is the student's responsibility to ensure that the correct modules and sessions are attended to.

8.6. Students are encouraged to immediately discuss any problems with the Presenter / Instructor / Academic Head / Training Manager. Should this request not be handled satisfactorily, please forward the details to the Head of the College

9. HOUSEKEEPING RULES

9.1. Messages – Messages will be forwarded to the students where required. Please try to limit these as well as the duration of follow-ups.

9.2. Smoking – will be allowed, only outside the building in designated smoking areas.

9.3. Cellular phones – to be switched off during training, presentations, and workshop hours. If permission has been granted beforehand, a student will be allowed (in exceptional cases) to leave his/her cell phone on during training, presentations, and workshops – calls to be taken outside the classroom.

9.4. Refreshments during training, presentations, and workshops – no eating or drinking will be allowed other than the refreshments provided in the break-away area.

9.5. Valuables (including module material) should be always secured.

10. MODULE MATERIAL

10.1. Reference material and/or training and workshop manuals may not be copied or duplicated under any circumstances.

10.2. Manuals and module material given to Students attending modules are subject to copyright laws and as such may under no circumstances be copied or distributed without the express written permission of the copyright holder or author.

11. EXAMINATIONS

11.1. Every effort is made to provide our students with a high-quality learning experience and to assist them in examination preparation. However, The College cannot guarantee that a student will pass an examination and cannot be held responsible in this regard.

12. ON-SITE LECTURES

12.1. Where modules are presented at the client's premises, the client will be responsible for providing refreshments and luncheons.

12.2. Unless otherwise quoted, the client will be responsible for:

- Supplying the necessary equipment (PC Printers) in accordance with the minimum requirement specification sheet,
- Software, server authorisations (log-in),
- Training, presentations, and workshops aids,
- Preparing the venue and organising access to the premises for the applicable lecturer,
- All travelling-related costs, including but not limited to flight, car hire/km travelled, accommodation, subsistence, and parking costs.

12.3. Module scheduling will be carried out by the College Administration in conjunction with the client, however, Student scheduling and confirmation to be carried out by the client, restricted access to your systems, supply of a non-functional technology system and not adhering to or compromising stipulated prerequisites could prevent on-time delivery of services. In this instance, and where it directly affects project progress, changes in scope and costing will be applicable

13. SPECIAL OFFERS

13.1. Special offers that the College may offer from time to time only apply to standard module pricing. Normal payment terms should be adhered to.

14. NON-SOLICITATION

14.1. Students and staff members of Esri South Africa or the College may not in any form whatsoever entice, encourage, or approach each other's employees with the view of offering them employment or enticing them to leave the employ of their respective companies.

15. ANNUAL PRICE REVIEW

15.1. The College reviews its pricing model on an annual basis at the end of the financial year (February) and hereby reserves the right to implement new price lists effective from the 1st of March each year. Ad hoc price increases due to exchange rate fluctuation and Service Provider cost change es will be passed on as and when applicable.

16. EXCHANGE RATE FLUCTUATIONS

16.1. The College reserves the right to change its pricing caused by exchange rate fluctuations where these materially affect the price of services, exams, or module offerings.

17. POLICY AMENDMENT

17.1. The College reserves the right, in its sole discretion, to add, amend, or delete any clause in its module policies.

18. DISCLAIMER

18.1. Presentation and/or attendance of modules and/or examinations are subject to the Standard Terms and Conditions of the College. These terms and conditions exclude liability for loss of or damage to any person(s) and /or property, whether such loss and/or damage has been caused by any negligence of the College and/or its employees and/or its agents and/or its partners.

CAMPUS DETAILS

Main Campus -Midrand Office

International Business Gateway, Cnr New Road and 6th Road, Midrand P.O. Box 652, Halfway House, South Africa, 1685 Tel: +27 11 238 6300 | Fax: +27 11 238 6365 www.esri-southafrica.com| college@esri-southafrica.com



Support Sites -

Umhlanga Office

Unit 2 (OB) The Ridge, Torsvale Office Park 8 Torsvale Crescent Somerset Park Umhlanga 4319 Tel: +27 (0) 31 303 5356

Cape Town Office

3rd Floor, The Armoury Building 160 Sir Lowry Road, Buchanan Square, Woodstock, Cape Town, 8000 Tel: +27 (0)21 422 4620



Esri South Africa College Learning Centre

Study with Us

<u>college@esri-southafrica.com</u> +27 (0)11 238 6300 <u>www.esri-southafrica.com</u>

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