

## Training Information Pack

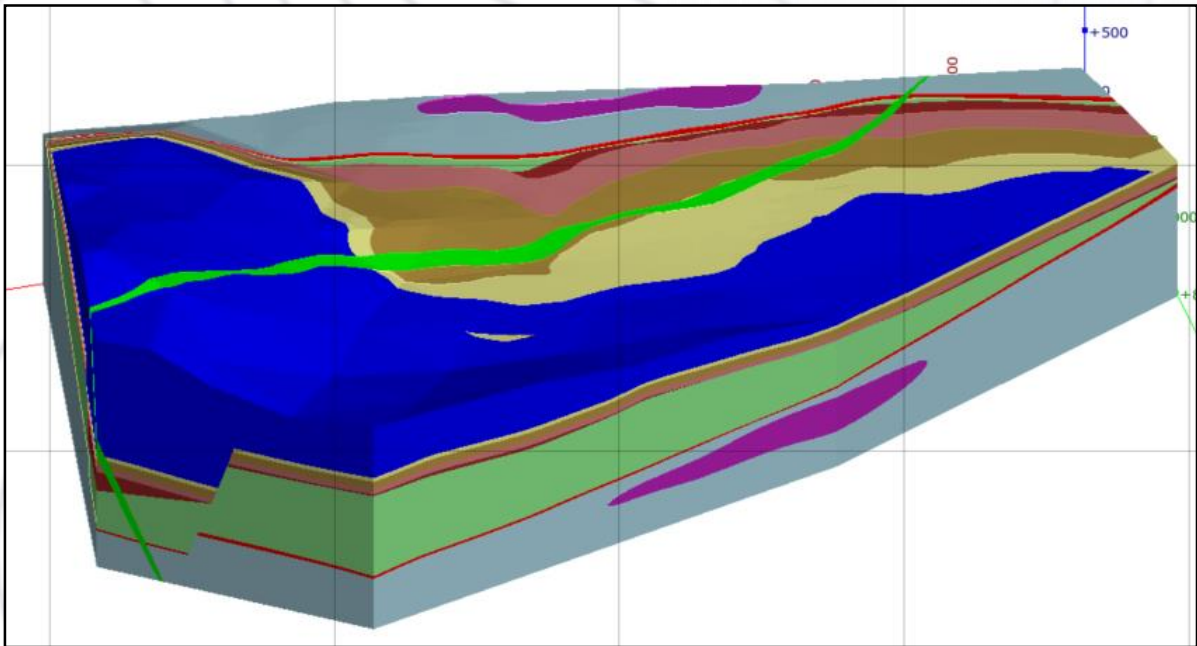
At B&S Geological we offer various training modules on the three-dimensional (3D) geological modelling software, Leapfrog Geo, as well as the data management and collaboration software, Seequent Central. This information pack contains information on the different training courses offered.

### LEAPFROG GEOLOGICAL MODELLING- TRAINING PROGRAM

<b>Introduction to Leapfrog Geo</b>  <b>(2 – Days)</b> 2 CPD Credits	<b>Intermediate Modelling in Leapfrog Geo</b> <b>(2 – Days)</b> 2 CPD Credits	Geostatistics and Estimation using Leapfrog Edge	<b>Specialised Modelling using Leapfrog Geo</b> <b>(1 - Day)</b>	<b>Introduction to Seequent Central</b>  <b>(Half-day)</b>	<b>Leapfrog for Managers</b>  <b>(2 hours)</b>
Geologists wanting to develop their skills in 3D geological modelling, teaching the basic tools to build a simple geological model.	Geologists that are already familiar with Leapfrog Geo, wanting to further develop their skills on updating an existing model, using new drilling, structural data and complex interpretations.	<b>UNDER CONSTRUCTION</b>	Users that are looking to enhance their knowledge and geological modelling skills for specific geological circumstances.	“Bringing teams and data together”. Visualise, track, and manage geological data from a centralised, auditable environment.	For Managers wanting to learn how to navigate Leapfrog Viewer, to visualise and interrogate models.
<b>Key Topics:</b> <ul style="list-style-type: none"> <li>• Interface and main menu</li> <li>• Scene tools</li> <li>• Importing data</li> <li>• Building and editing a simple geological model</li> <li>• Presentation tools</li> </ul>	<b>Key Topics:</b> <ul style="list-style-type: none"> <li>• Updating an existing model</li> <li>• Interval selection tool</li> <li>• Importing structural data</li> <li>• Creating faults</li> <li>• Importing and using cross-sections</li> <li>• Structural modelling</li> </ul>		<b>Options available:</b> <ul style="list-style-type: none"> <li>• Kimberlite Pipe (1 CPD Credit)</li> <li>• From Maps to Models (1 CPD Credit)</li> <li>• Lode Gold Deposits (2-days) (2 CPD Credits)</li> </ul>	<b>Key Topics:</b> <ul style="list-style-type: none"> <li>• Central interface</li> <li>• Central Browser</li> <li>• Central Portal</li> <li>• Linking objects in Leapfrog Geo</li> <li>• Branches and priority</li> </ul>	<b>Key Topics:</b> Learning the Leapfrog Viewer interface.

# Introduction to Leapfrog Geo

## Course Outline



B&S Geological invites you to attend our Introduction to Leapfrog Geo course to be held at our office in Bramley North, Sandton, Johannesburg or Online. Please see the training schedule for available dates.

### **Summary**

**Duration:** 2 Day

**Course level:** Beginner

**Required skill:** Basic

**Price:** R8 000 (Excl. VAT)

**Audience:** Professional/Student Geologists

**Location:** Sandton, Johannesburg

**Time:** 08:30am – 16:30pm

**Tel:** +27(0)22 007 0035

**Email:** [info@bnsgeo.co.za](mailto:info@bnsgeo.co.za)

### **Course Description**

Geological modelling is a powerful and useful skill for any geologist. This course is designed to equip participants with the skills to generate geological models using Leapfrog Geo, a 3D geological modelling software. Attendees of this course will be taken through the basics of importing data all the way to creating a complete geological model.



## ***Course Outline***

- Leapfrog basic functionalities and workflows;
- Importing and validation of drillhole data;
- Importing and georeferencing maps;
- Building geological models using multiple wireframing tools;
- Building and applying faults to geological models;
- Updating an existing model with new drilling;
- Presentation tools;
- Assessment.

## ***Target Audience***

Geologists, with or without modelling experience, wanting to learn 3D geological modelling using Leapfrog Geo.

## ***Equipment Requirements***

You will be required to bring your own laptop and mouse.

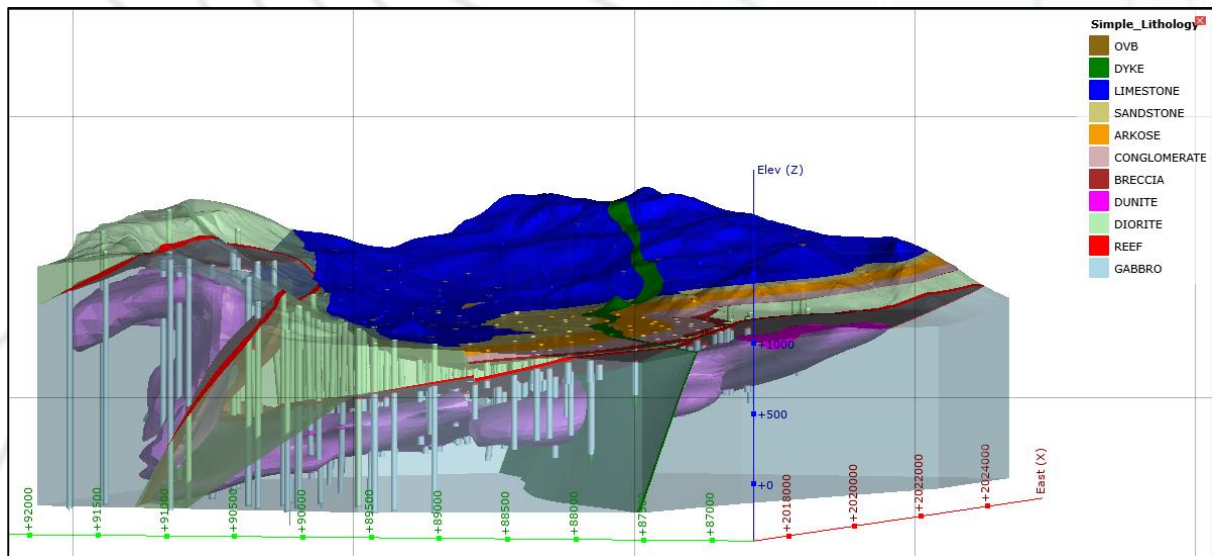
## ***Terms & Conditions***

Due to the limited seating, full payment will be required to secure your spot on the course. Please enquire about a special concession for geologists paying in their personal capacity or unemployed geologists.



# Intermediate Modelling in Leapfrog Geo

## Course Outline



B&S Geological invites you to attend our Intermediate Modelling in Leapfrog Geo course to be held at our office in Bramley North, Sandton, Johannesburg or Online. Please see the training schedule for available dates.

### Summary

**Duration:** 2 Day

**Course level:** Intermediate

**Prerequisite:** Introduction to Leapfrog Geo Course or equivalent

**Time:** 08:30am – 16:30pm

**Price:** R8 000 (Excl. VAT)

**Audience:** Professional/Student Geologists

**Location:** Sandton, Johannesburg

**Tel:** +27(0)22 007 0035

**Email:** [info@bnsgeo.co.za](mailto:info@bnsgeo.co.za)

### Course Description

This course is designed to equip participants with the skills to expand and update an existing geological model with new drilling, mapping and structural data using Leapfrog Geo, Seequent's 3D geological modelling software. Attendees of this course will be taken through the basics of appending data, using advanced polyline editing tools, as well as an in depth look at the structural modelling tools that Leapfrog Geo has to offer.



## ***Course Outline***

- Expanding and updating an existing model with new geological information
- Importing new structural data
- Creating a fault from surface mapping and downhole structural measurements
- Structural modelling using the form interpolants and structural trends
- Modelling of folded geological units
- Importing and using cross-sections to edit surfaces
- Advanced polyline tools and interpretation

## ***Target Audience***

Geologists, with modelling experience, wanting to expand on their knowledge of 3D geological modelling using Leapfrog Geo.

## ***Equipment Requirements***

You will be required to bring your own laptop and mouse.

## ***Terms & Conditions***

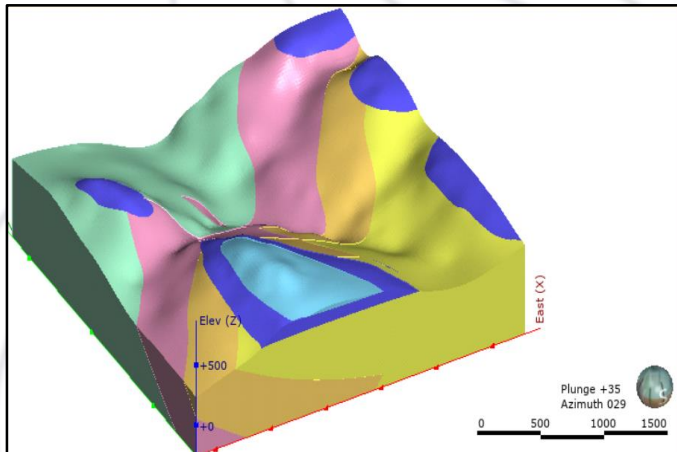
Due to the limited seating, full payment (or Purchase Order) will be required to secure your spot on the course. Please enquire about a special concession for geologists paying in their personal capacity or unemployed geologists.



# Specialised Modelling using Leapfrog Geo- From Maps to Models

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## Course Outline



B&S Geological invites you to attend our Specialised Modelling using Leapfrog Geo training course to be held at our office in Bramley North, Sandton, Johannesburg, and also now available Online. Please see the training schedule for available dates.

### Summary

**Duration:** 1 Day

**Course level:** Intermediate

**Required skill:** Basic

**Price:** R4 000 (Excl. VAT)

**Audience:** Professional Geologists

**Location:** Sandton, Johannesburg

**Time:** 08:30am – 16:30pm

**Tel:** +27(0)22 007 0035

**Email:** [info@bnsgeo.co.za](mailto:info@bnsgeo.co.za)

### Course Description

This course is designed to further develop the skills of participants that are using or have used Leapfrog Geo. Attendees will be taken through the various techniques and tools used to create a 3D geological model from a 2D map. The training course also covers exporting volumes and presentation tools.

### Course Outline

- Importing a non-georeferenced map;
- Importing mesh, GIS Vector data, and polylines;
- Digitising a fault from a map;
- Creating structural data from a map;
- Creating a 3D geological model from a map;
- Exporting volumes and geological models;
- Presentation tools (enhanced cross sections and 3D scene files);
- Assessment.



## ***Target Audience***

Geologists, with beginner modelling experience, wanting to learn how to create a 3D geological model from a map using Leapfrog Geo.

## ***Equipment Requirements***

You will be required to bring your own laptop and mouse.

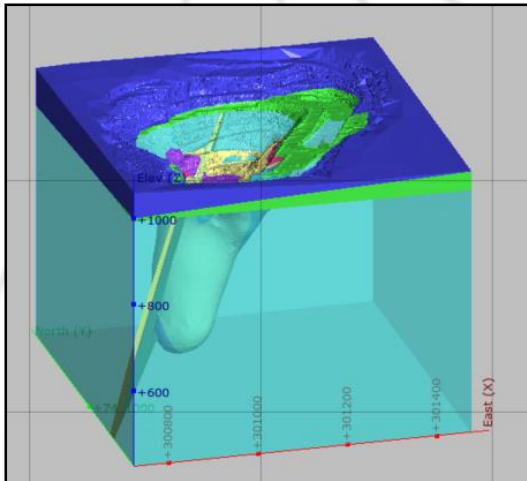
## ***Terms & Conditions***

Due to the limited seating, full payment will be required to secure your spot on the course. Please enquire about a special concession for geologists paying in their personal capacity or unemployed geologists.



# Specialised Modelling using Leapfrog Geo- Kimberlite Pipe

## Course Outline



B&S Geological invites you to attend our Deposit Specific Leapfrog Geo course to be held at our office in Bramley North, Sandton, Johannesburg or Online. Please see the training schedule for available dates.

### **Summary**

**Duration:** 1 Day

**Course level:** Advanced

**Required skill:** Intermediate

**Price:** R4 000 (Excl. VAT)

**Audience:** Professional Geologists

**Location:** Sandton, Johannesburg

**Time:** 08:30am – 16:30pm

**Tel:** +27(0)22 007 0035

**Email:** [info@bnsgeo.co.za](mailto:info@bnsgeo.co.za)

### **Course Description**

This course is designed to further develop the skills of participants that are using or have used Leapfrog Geo. Attendees will be taken through the various techniques and tools used to create a 3D geological model of a kimberlite pipe deposit, including internal kimberlite facies and the surrounding country rocks. Also covered are mined-out modelling, block modelling and cross sections.

### **Course Outline**

- Simplifying drillhole lithological data (group lithologies);
- Creating a simplified geological model of a kimberlite pipe and country rocks;
- Editing the kimberlite pipe using the polyline tools;
- Creating a refined geological model for the internal kimberlite facies;
- Creating a mined/unmined model using a topographic pit shell;
- Combined models, to determine mined/unmined volumes;
- Block modelling;
- Exporting volumes/wireframes;
- Presentation tools (enhanced cross sections and 3D scene files).





### ***Target Audience***

Geologists, with modelling experience, wanting to learn how to create a 3D geological model of a kimberlite pipe using Leapfrog Geo. Experience in kimberlite pipe deposits is advantageous.

### ***Equipment Requirements***

You will be required to bring your own laptop and mouse.

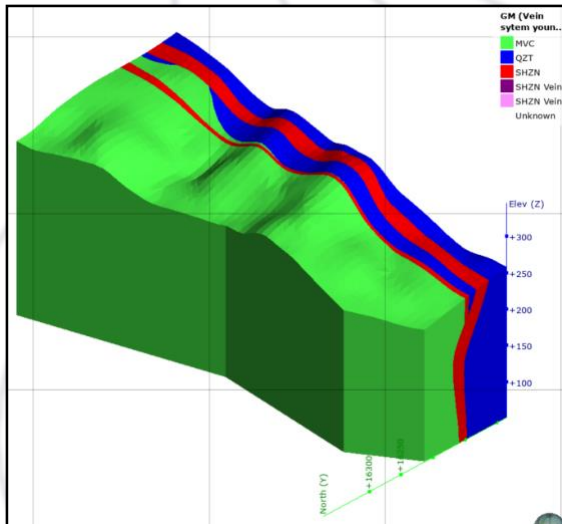
### ***Terms & Conditions***

Due to the limited seating, full payment will be required to secure your spot on the course. Please enquire about a special concession for geologists paying in their personal capacity or unemployed geologists.



# Specialised Modelling using Leapfrog Geo- Lode Gold Deposits

## Course Outline



B&S Geological invites you to attend our Deposit Specific Leapfrog Geo course to be held at our office in Bramley North, Sandton, Johannesburg, and also now available Online. Please see the training schedule for available dates.

### Summary

**Duration:** 2 Day

**Course level:** Advanced

**Required skill:** Intermediate

**Price:** R8 000 (Excl. VAT)

**Audience:** Professional Geologists

**Location:** Sandton, Johannesburg

**Time:** 08:30am – 16:30pm

**Tel:** +27(0)22 007 0035

**Email:** [info@bnsgeo.co.za](mailto:info@bnsgeo.co.za)

### Course Description

This course is designed to further develop the skills of participants that are using or have used Leapfrog Geo. Attendees will be taken through the various techniques and tools used to create a 3D geological model for a Lode Gold Deposit. The training course also covers numerical modelling, block modelling, and cross sections.

### Course Outline

- Importing and validating drillhole data;
- Using interval selection for veins;
- Creating a Geological Model for a Lode Gold Deposit;
- Creating a Mineralised Model using assay data;
- Numerical Modelling;
- Block modelling;
- Statistics for Block Models;
- Presentation tools (enhanced cross sections and 3D scene files).



## ***Target Audience***

Geologists, with modelling experience, wanting to learn how to create a 3D geological model for a Lode Gold Deposits using Leapfrog Geo.

## ***Equipment Requirements***

You will be required to bring your own laptop and mouse.

## ***Terms & Conditions***

Due to the limited seating, full payment will be required to secure your spot on the course. Please enquire about a special concession for geologists paying in their personal capacity or unemployed geologists.



# Introduction to Seequent Central

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## Course Outline



B&S Geological invites you to attend our Introduction to Seequent Central course to be held at our office in Bramley North, Sandton, Johannesburg or Online. Please see the training schedule for available dates.

### **Summary**

**Duration:** Half Day

**Course level:** Beginner

**Required skill:** Basic

**Price:** R2 000 (Excl. VAT)

**Audience:** Professional Geologists

**Location:** Sandton, Johannesburg

**Time:** 08:30am – 12:30pm

**Tel:** +27(0)22 007 0035

**Email:** [info@bnsgeo.co.za](mailto:info@bnsgeo.co.za)

### **Course Description**

This course is designed to develop the skills required to manage Leapfrog Geo projects using the data management software, Seequent Central. Attendees will be taken through the various techniques and tools used to link up project for better data management.

### **Course Outline**

- Sharing an existing project;
- Interacting with project using the Central Browser;
- Using the Central Pathways;
- Branches and nodes;
- Adding users and setting permissions;
- Linking surfaces and data;
- Updating existing surfaces.



## ***Target Audience***

Geologists and Project Managers, with or without modelling experience, wanting to learn how to better manage Leapfrog Geo projects and data.

## ***Equipment Requirements***

You will be required to bring your own laptop and mouse.

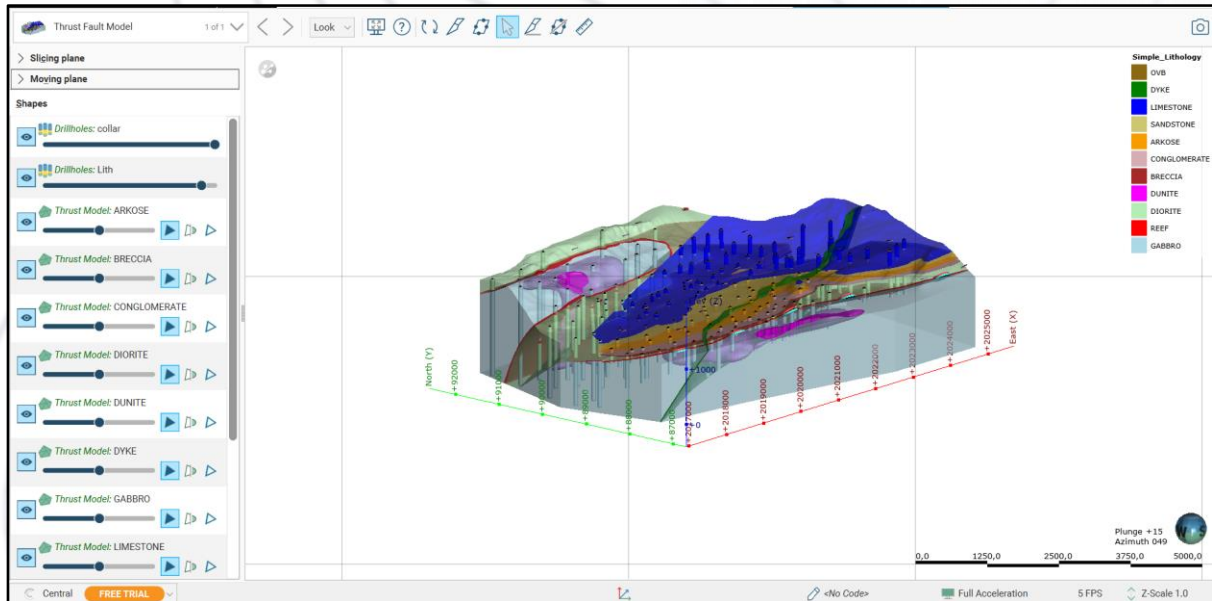
## ***Terms & Conditions***

Due to the limited seating, full payment will be required to secure your spot on the course. Please enquire about a special concession for geologists paying in their personal capacity or unemployed geologists.



# Leapfrog for Managers

## Course Outline



B&S Geological invites you to attend our Leapfrog for Managers course to be held at our office in Bramley North, Sandton, Johannesburg. Please see the training schedule for available dates.

### Summary

**Duration:** 2 Hours

**Course level:** Beginner

**Required skill:** Basic

**Price:** Free

**Audience:** Professional Geologists/Managers

**Location:** Sandton, Johannesburg

**Time:** 10:30am – 12:30pm

**Tel:** +27(0)22 007 0035

**Email:** [info@bnsgeo.co.za](mailto:info@bnsgeo.co.za)

### Course Description

This course is designed to introduce attendees to Leapfrog Viewer, a free desktop application that allows you to view Scene Files that have been exported from Leapfrog modelling products. Attendees of this course will be taken through the various steps required to use Leapfrog Viewer to navigate three-dimensional (3D) geological models.

### Course Outline

- Creating a Seequent ID;
- Downloading Leapfrog Viewer;
- Opening a Scene File;
- Interacting with the Scene File in Leapfrog Viewer.



## ***Target Audience***

Geologist, non-geologists, or managers wanting to learn how to view and interact with Scene Files exported from Leapfrog modelling products.

## ***Equipment Requirements***

You will be required to bring your own laptop and mouse.

## ***Terms & Conditions***

Due to the limited seating, please enquire about the available dates and register for the course to secure your seat.



### Leapfrog Geo Training

To book your spot, kindly complete and return this registration form.

**\*NB.** - Due to limited space, **full payment (or Purchase Order)** is required to secure your spot.

Please enquire about discount for multiple courses purchased.

#### Course Information

Course Name	Cost	Date (Please tick the date you would like to attend)	
<b>Introduction to Leapfrog Geo</b> 2 CPD Credits (Validation Number: 2020-0021-001288)  (Basic – 4 half days) Online	R 8 000.00 (Excl. Vat)	<input type="checkbox"/> 3 <sup>rd</sup> – 6 <sup>th</sup> August 2021 (Online)	<input type="checkbox"/>
		<input type="checkbox"/> 12 <sup>th</sup> – 15 <sup>th</sup> October 2021 (Online)	<input type="checkbox"/>
<b>Intermediate Modelling in Leapfrog Geo</b> 2 CPD Credits (Validation Number: 2021-0021-001724)  (Intermediate – 4 half days) Online	R 8 000.00 (Excl. Vat)	<input type="checkbox"/> 14 <sup>th</sup> – 17 <sup>th</sup> September 2021 (Online)	<input type="checkbox"/>
		<input type="checkbox"/> 16 <sup>th</sup> – 19 <sup>th</sup> November 2021 (Online)	<input type="checkbox"/>
<b>Specialised Modelling using Leapfrog Geo - Kimberlite Pipe</b>  1 CPD Credit (Validation Number: 2020-0021-001436)  (Advanced – 1 day) Online	R 4 000.00 (Excl. Vat)	<input type="checkbox"/> 18 <sup>th</sup> August 2021 (Online)	<input type="checkbox"/>
<b>Specialised Modelling using Leapfrog Geo - From Maps to Models</b>  1 CPD Credit (Validation Number: 2020-0021-001435)  (Advanced – 1 day) Online	R 4 000.00 (Excl. Vat)	<input type="checkbox"/> 3 <sup>rd</sup> November 2021 (Online)	<input type="checkbox"/>
<b>Specialised Modelling using Leapfrog Geo – Lode Gold Deposit</b>  2 CPD Credits (Validation Number: 2020-0021-001434)  (Advanced – 4 half days) Online	R 8 000.00 (Excl. Vat)	<input type="checkbox"/> 28 <sup>th</sup> Sep – 1 <sup>st</sup> Oct 2021 (Online)*	<input type="checkbox"/>
<b>Introduction to Seequent Central</b>  (4 hours)	R 2 000.00 (Excl. Vat)	<input type="checkbox"/> 1 <sup>st</sup> December 2021 (Online)	<input type="checkbox"/>
<b>Leapfrog for Managers</b>  (2 hours)	Free	<input type="checkbox"/> 3 <sup>rd</sup> December 2021 (Online)	<input type="checkbox"/>



## Acceptance

Signed for and on behalf of the duly Authorised Signature of the Trainee:

Name.....

Date...../...../.....

Signature.....

Purchase Order.....

## Billing Information

<b>Company Name</b>		
<b>Billing Address</b>		
	<b>Email Address:</b>	

## Computer Requirements

Below is a list of the minimum and recommended computer requirements for running Leapfrog Geo Software. The minimum requirements are adequate for our short courses, whilst the recommended requirements are advised for customised training.

Component	Minimum Requirements	Recommended Requirements
RAM	4 GB	32 GB RAM or more
CPU	Intel Core i3, i5 or i7 CPU (2nd Generation) or later Intel Xeon	Intel Core i7-6800k Intel Core i7-6900k Intel Core i7-7700 Intel Xeon E5-2630 v3
Free Hard Disk Space	Hard Disk Drive (HDD) 250 GB capacity 25 GB free space	Solid-State Drive (SSD) 1 TB or larger capacity 100 GB free space
Graphics Card GPU	At least 512 MB of video memory	2 GB Video RAM NVIDIA GeForce GTX 950 or better AMD Radeon RX 460 or better Latest available graphics drivers
Display Resolution	1280 x 720 Single display	1920 x 1080 or higher Multiple displays
<a href="https://www.seequent.com/help-support/system-requirements/leapfrog3d/">https://www.seequent.com/help-support/system-requirements/leapfrog3d/</a>		

