Lithium Pegmatite Exploration Training Course

Professional Development Training Course Outline

Category	General Training	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

The global shift toward clean energy transition, electric vehicles (EVs), and battery energy storage systems (BESS) has placed lithium at the center of the critical minerals supply chain. Among the primary hard-rock sources of lithium, Lithium-Cesium-Tantalum (LCT) pegmatites represent the most economically significant deposits, hosting high-grade minerals such as spodumene, lepidolite, and petalite. Lithium Pegmatite Exploration Training Course provides a comprehensive, industry-focused understanding of lithium pegmatite exploration, integrating modern exploration technologies, geological modelling, and resource evaluation techniques used in global lithium discoveries.

This course is designed to bridge the gap between academic geology and real-world mineral exploration practice. Participants will gain hands-on exposure to geological mapping, geochemical targeting, geophysical interpretation, remote sensing, GIS-based prospectivity modelling, drilling strategies, and NI 43-101 / JORC-compliant reporting frameworks. With case-driven learning from world-class deposits, this program equips professionals to confidently contribute to the rapidly expanding global lithium exploration and mining sector, driven by demand for green energy minerals and sustainable resource development.

Programme Curriculum

Lithium Pegmatite Exploration Training Course

Introduction

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Course Duration

5 days

Course Objectives

1. Understand LCT pegmatite geology and lithium mineral systems
2. Identify spodumene-bearing pegmatite zones using field criteria
3. Apply geochemical exploration techniques for lithium targeting
4. Interpret geophysical datasets
5. Use remote sensing & satellite imagery for pegmatite mapping
6. Develop GIS-based mineral prospectivity models
7. Design effective lithium exploration drilling programs
8. Conduct core logging and mineralogical interpretation
9. Apply QA/QC protocols in geochemical sampling
10. Evaluate resource estimation techniques
11. Understand orebody geometry and structural controls
12. Assess economic viability of lithium pegmatite projects
13. Integrate ESG, sustainability, and critical minerals strategy

Target Audience

1. Exploration geologists
2. Mining engineers
3. Geochemists and geophysicists
4. GIS and remote sensing analysts
5. Mining company project managers
6. Government geological survey professionals
7. University geology graduates & researchers
8. Investors and mining consultants in **critical minerals sector**

Course Modules

Module 1: Introduction to Lithium Pegmatite Systems

- LCT pegmatite classification and formation processes
- Global lithium supply chain overview
- Mineralogy- spodumene, lepidolite, petalite
- Structural controls on pegmatite emplacement
- Lithium brine vs hard-rock comparison
- **Case Study:** Greenbushes Lithium Deposit (Australia) – world-class LCT system

Module 2: Field Geology & Mapping Techniques

- Pegmatite field identification methods
- Structural mapping of shear zones and fractures
- Mineral zoning in pegmatite bodies
- Outcrop logging and lithological logging
- Field sampling strategies
- **Case Study:** Pilgangoora Lithium Province (Western Australia)

Module 3: Geochemistry & Pathfinder Elements

- Lithium geochemical behavior and dispersion halos
- Pathfinder elements
- Soil, rock, and stream sediment sampling
- Data QA/QC protocols
- Geochemical anomaly interpretation
- **Case Study:** Tanco Pegmatite (Canada)

Module 4: Geophysics for Lithium Exploration

- Magnetic and radiometric survey interpretation
- Electrical resistivity and EM methods
- Subsurface pegmatite detection techniques
- 3D geophysical modelling
- Integration with geological datasets
- **Case Study:** Bikita Lithium Project (Zimbabwe)

Module 5: Remote Sensing & GIS Prospectivity

- Satellite imagery for pegmatite targeting
- Spectral analysis of alteration minerals
- GIS spatial analysis and layering techniques
- Drone mapping applications
- Machine learning in exploration targeting
- **Case Study:** Pilbara Lithium Belt remote sensing analysis

Module 6: Drilling, Sampling & Core Logging

- RC vs diamond drilling strategies
- Core recovery and orientation techniques
- Lithium grade control sampling
- Lithological and mineralogical logging
- Database management systems
- **Case Study:** Manono Lithium Project (DRC)

Module 7: Resource Estimation & Reporting Standards

- Geological modelling workflows
- Block modelling techniques
- Grade interpolation methods
- JORC and NI 43-101 compliance
- Uncertainty and risk assessment
- **Case Study:** Whabouchi Lithium Project (Canada)

Module 8: Economic Evaluation & ESG in Lithium Mining

- CAPEX and OPEX analysis
- Lithium pricing and market trends
- ESG frameworks in critical minerals
- Environmental impact assessments
- Project feasibility studies
- **Case Study:** Green Energy lithium projects in South America (Lithium Triangle)

Training Methodology

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

Ready to enroll or request a customized program? Book online or contact us:

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