



Course Syllabus

Course Title: Precious Stones Light Mining, Processing, & Trading

Course Type: Skills Training

Course Level: 3 – Advanced Certificate

Course Duration: 6 Months

Taught Structure:

- **Months 1–4:** General Precious Metals Mining, Processing & Trading
- **Months 5–6:** Focused Specialization on Gold & Diamonds

Assessed by: CDT Group Germany, TEVETA, Ministry of Education Zambia

Internship & Practical Partners: Selected Zambian, German, Austrian, and Swiss companies & organizations

Course Introduction

Dear Learners,

Welcome to the “Precious Stones Light Mining, Processing, & Trading” course. This program is designed to empower Zambian youth and adults with advanced skills in mining, processing, and trading precious metals and stones. You will gain practical knowledge of the entire mining value chain—from exploration, extraction, and processing, to marketing and trading.

This course is your gateway to a career in small- and medium-scale mining businesses, creating opportunities for employment, entrepreneurship, and wealth creation. By the end, you will have both the technical expertise and the practical confidence to operate responsibly and profitably in Zambia’s mining sector, while adhering to international standards.



Course Outcomes

Upon completion of this course, learners will be able to:

1. Understand the principles and techniques of light mining for precious metals and stones.
2. Conduct safe and efficient extraction and processing of gemstones and gold.
3. Apply international standards in trading and marketing precious stones.
4. Analyze market trends and establish small- or medium-scale mining businesses.
5. Implement sustainable and environmentally responsible mining practices.
6. Develop business plans and operational strategies for mining ventures.
7. Engage confidently with local and international stakeholders in the mining industry.

Course Full Syllabus Modules

Module Code	Module Title	Brief Description
PSM101	Introduction to Precious Metals & Stones	Fundamentals of mining, types of precious stones, gemstones, gold, silver, platinum; market overview.
PSM102	Geology & Exploration	Understanding geology, mineral mapping, site selection, mineral sampling, risk assessment.
PSM103	Mining Operations & Equipment	Small- and medium-scale mining methods, tools, machinery, safety practices.
PSM104	Mineral Processing Techniques	Crushing, milling, gravity separation, flotation, refining; sample processing.
PSM105	Safety, Environmental & Regulatory Compliance	Mining safety, personal protective equipment (PPE), environmental impact assessments, Zambian mining laws.
PSM106	Marketing, Trading & Business Strategies	Pricing, international trading standards, negotiation skills, mining business management.
PSM107	Gold & Diamond Specialized Mining	Exploration, extraction, and processing of gold and diamonds; valuation and trading techniques.
PSM108	Advanced Processing & Refining	Advanced methods for refining gold and diamonds, quality control, certification.
PSM109	Entrepreneurship & SME Development	Business plan creation, investment strategies, access to funding, partnerships.
PSM110	Practical Internship & Industry Exposure	On-site practical training with partner companies in Zambia, Germany, Austria, and Switzerland.



Module Expansion

PSM101 – Introduction to Precious Metals & Stones

- Definition and classification of precious stones and metals
- Global and Zambian mining context
- Key mining regions in Zambia
- Overview of market trends

PSM102 – Geology & Exploration

- Introduction to geology for miners
- Mineral mapping and surveying techniques
- Sampling methods and site evaluation
- Environmental impact assessments

PSM103 – Mining Operations & Equipment

- Manual and semi-mechanized mining
- Selection and operation of light mining tools
- Safety procedures and PPE use
- Waste management practices

PSM104 – Mineral Processing Techniques

- Crushing and milling processes
- Gravity separation for gemstones and metals
- Flotation techniques for specific minerals
- Refining basics

PSM105 – Safety, Environmental & Regulatory Compliance

- Occupational health and safety
- Mining permits and licenses in Zambia
- Environmental sustainability in small- and medium-scale mining
- Ethical mining practices



PSM106 – Marketing, Trading & Business Strategies

- Introduction to mining economics
- Trading platforms and international standards
- Pricing, negotiations, and contract management
- Branding and promotion of mining products

PSM107 – Gold & Diamond Specialized Mining

- Advanced gold and diamond prospecting
- Extraction and beneficiation techniques
- Assaying and valuation
- Ethical sourcing and conflict-free certification

PSM108 – Advanced Processing & Refining

- Metallurgical refining of gold
- Diamond cutting and polishing techniques
- Quality assurance and certification
- Market-ready product preparation

PSM109 – Entrepreneurship & SME Development

- Business plan development for mining SMEs
- Access to funding and investment opportunities
- Partnership and network building
- Scaling small- to medium-mining enterprises

PSM110 – Practical Internship & Industry Exposure

- Hands-on training in Zambian mines
- Exposure to German, Austrian, Swiss and European mining technologies
- Cross-cultural exchange and international industry standards
- Project implementation and reporting



Course Benefits to the Learner

- Practical skills for immediate employment or entrepreneurship
- Knowledge of both local and international mining markets
- Enhanced ability to establish SMEs in the mining sector
- Certification recognized by TEVETA and CDT Group Germany
- Exposure to international best practices in mining

Course Benefits to the Nation

- Skilled workforce contributing to Zambia's mining sector
- Increased small- and medium-scale mining productivity
- Youth empowerment and job creation
- Enhanced responsible and sustainable mining practices
- Strengthened Zambia's international mining partnerships

Assessors

- CDT Group Germany
- TEVETA (Technical Education, Vocational and Entrepreneurship Training Authority)
- Ministry of Education, Zambia

Internship & Practical Partners

- Leading mining and trading companies in Zambia
- German, Austrian, and Swiss industry partners
- International NGOs in mining and youth development

Copyright@cdtgroupgermany