



Department of Earth Resources Engineering, University of Moratuwa, Sri Lanka

Our Services To Industry



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Expert Services Offered by Department to Industry

- Aggregate testing for quarry industry and road construction projects.
- Auguring for sub-surface sampling using a power auger.
- Bathymetry and sub-bottom profiling for inland water bodies and offshore.
- Borehole logging.
- Designing and planning of all sort of rock blasting including controlled blasting of rocks.
- Designing and planning of underground and surface mines/ quarries.
- Designing of mineral processing plants.
- Economic Viability Reports [EVR] for the mining and mineral industry.
- Environmental Impact Assessment [EIA] reports for mining and quarrying projects.
- Flood hazard assessment.
- Gem identification and valuation.
- Geochemical analysis of rocks and soils.
- Geological and engineering geological mapping.
- GPR: Ground Penetration Radar surveys for subsurface exploration.
- Groundwater Exploration using Resistivity Surveying Techniques.
- Heat treatment of gemstones.
- Minerals and rock analysis.
- Minerals Exploration [Onshore and Offshore].
- Mine waste management and treatment.
- Resource management using RS and GIS.
- Rock testing [Physical and chemical properties of rocks and petrographic analysis].
- Site investigations for engineering geological projects.
- Seismic Surveys for bedrock level confirmation.
- Slope stability assessment/ Landslide investigation.
- Tunneling and shaft sinking.
- Ventilation system design and ventilation surveys for sub-surface excavations and underground mines.
- Water quality analysis.
- Water sampling [depth wise] from inland water bodies and offshore.

Laboratory Facilities – Please click on Laboratory Name OR Page No., for details

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- ▶ **Consulting Services**
- ▶ **Testing Services**
- ▶ **Research Services**

The Department of Earth Resources Engineering has a handful of engineering testing Laboratories. In particular, Analytical Laboratory plays a major role for analytical testing methods, chemistry and environmental testing analysis and water quality monitoring.

Analytical Capacity of the Department heightened by the Inductively Coupled Plasma Mass Spectrometer and UV-Visible Spectrophotometer for further development of mineral processing and value addition related projects.

Well Organized Report

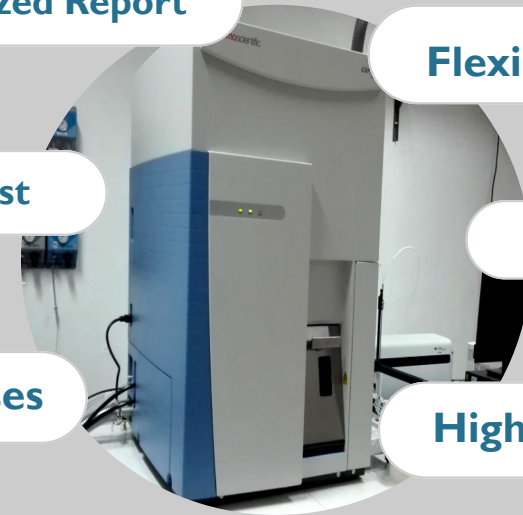
Flexibility

Best Analyst

Safety

Quick Responses

High Quality



ICP-MS

Inductively Coupled Plasma Mass Spectrometer has an ability to detect metals and several non metals in liquid samples at concentration levels in parts per trillion level. ICP-MS is used for manipulating all the way to soil and water analysis in environmental field.

OUR SERVICES

SERVICES	PARAMETERS
Water Analysis	Water Quality Parameters (pH, Temperature, Electrical conductivity, Turbidity, Water Hardness and COD) All metal and non metal ions
Soil Analysis	Physical analysis Chemical Analysis
Quantitative Analysis of Analytes	Quantitative analysis of metal and non metal ions (Nitrate, Fluoride, Phosphate, Iron, Calcium and Magnesium)



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Gemmology Laboratory

DEPARTMENT OF EARTH
RESOURCES ENGINEERING

UNIVERSITY OF MORATUWA

About us

Department of Earth Resources Engineering possess advanced instruments to provide high quality and reliable testing for gem identification and heat treatment. We are committed to offering trustworthy and accurate professional service to the gem industry utilizing a state of the art of gemological laboratory while maintaining the international standards.



MAJOR LABORATORY SERVICES

Services	Description
Gem identification	Includes full color photograph of the gemstone and physical data of gemstone
Detailed certificate of gemstone	Includes full color photograph, physical and gemological data of gemstone
	One day express services to fulfill client's immediate requirements
Identification of heat-treated Corundum	Certificate of gem identification of heat treatment
Heat treatment of Corundum varieties	Treated gems with enhanced appearance

Contact us

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University of Moratuwa

GEOLOGY LABORATORY



Geology Laboratory has been a consultancy leader in the application of geology principles to achieve safe and economical services for Engineering projects. We are highly experienced in investigating, evaluating, analyzing, identification and exploration to overcome the challenges presented at the sites by variable soil, rock and groundwater conditions.

REACH US

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**CONSULTANCY
AND
RESEARCH SERVICES**

OUR SERVICES

- ◆ Geophysical investigation
 1. Ground Penetrating Radar (GPR)
 2. Resistivity Survey
 3. Magnetic Survey



- ◆ Hydrogeological studies and Groundwater Exploration.
- ◆ Geological Disaster Mitigation.
- ◆ Minerals and Rock Identification and Petrographic Analysis.
- ◆ Geological and Engineering Geology Mapping.

- ◆ GIS maps for
 1. Mineral Exploration.
 2. Natural Disaster Analysis.
 3. Manmade Disaster Analysis.



- ◆ Auger Drilling for Resource Exploration and Subsurface Investigation.
- ◆ Site Investigation for industrial quarry sites (Rock type and Resource Calculation).
- ◆ Flood Hazards Assessment Studies and providing training facilities under geology.
- ◆ Geology component of Initial Environmental Examination Report (IEER) an Environmental Impact Assessment (EIA).
- ◆ Borehole Logging and Resource Evaluation.



CONSULTING SERVICES

Scoping studies

Quick and cost-effective mineral processing testing programs to determine the economic potential of a future operation.

Flowsheet development and Optimization

Metallurgical and hydrometallurgical tests after initial scoping studies, to determine the most efficient, cost-effective, and optimal way to set up your recovery circuit.

Plant audits

Operational and plant visits to conduct test work for increasing process efficiency.

Economic Viability Reports (EVR) for the mining industry

Environmental Impact Assessment Reports (EIA) for mining and quarry projects

about us

Mineral Processing Laboratory of the Department of Earth Resources Engineering is the only laboratory that facilitates the teaching of undergraduate Mineral processing curriculum for the engineers in Sri Lanka. Equipped with laboratory-scale processing machinery and staff with high research capacity, we are the pioneers in providing mineral processing expertise in Sri Lanka.

contact us

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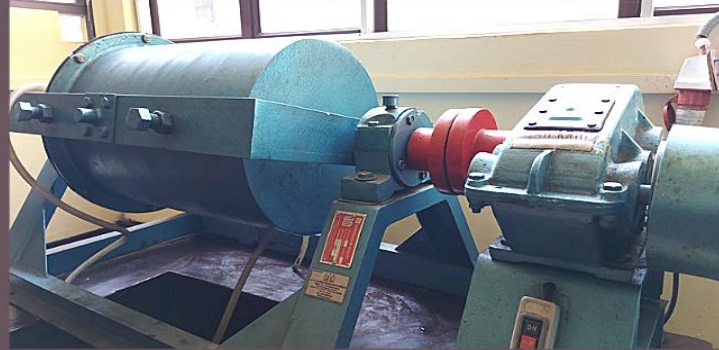
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MINERAL PROCESSING LABORATORY SERVICES

Mineral Processing Laboratory
Department of Earth Resources Engineering

UNIVERSITY OF MORATUWA
SRI LANKA



ANALYTICAL SERVICES PHYSICAL SEPERATION

Physical separation encompasses the same basic principle of physical properties between the ore mineral and the gangue materials.

Equipped with a **shaking table**, **Humphrey spiral**, **pulsator jig**, **cyclone**, froth floatation cell and high tension seperator. Using this range of equipment, we can perform analysis from scoping trials to pilot-scale investigations and design tests.

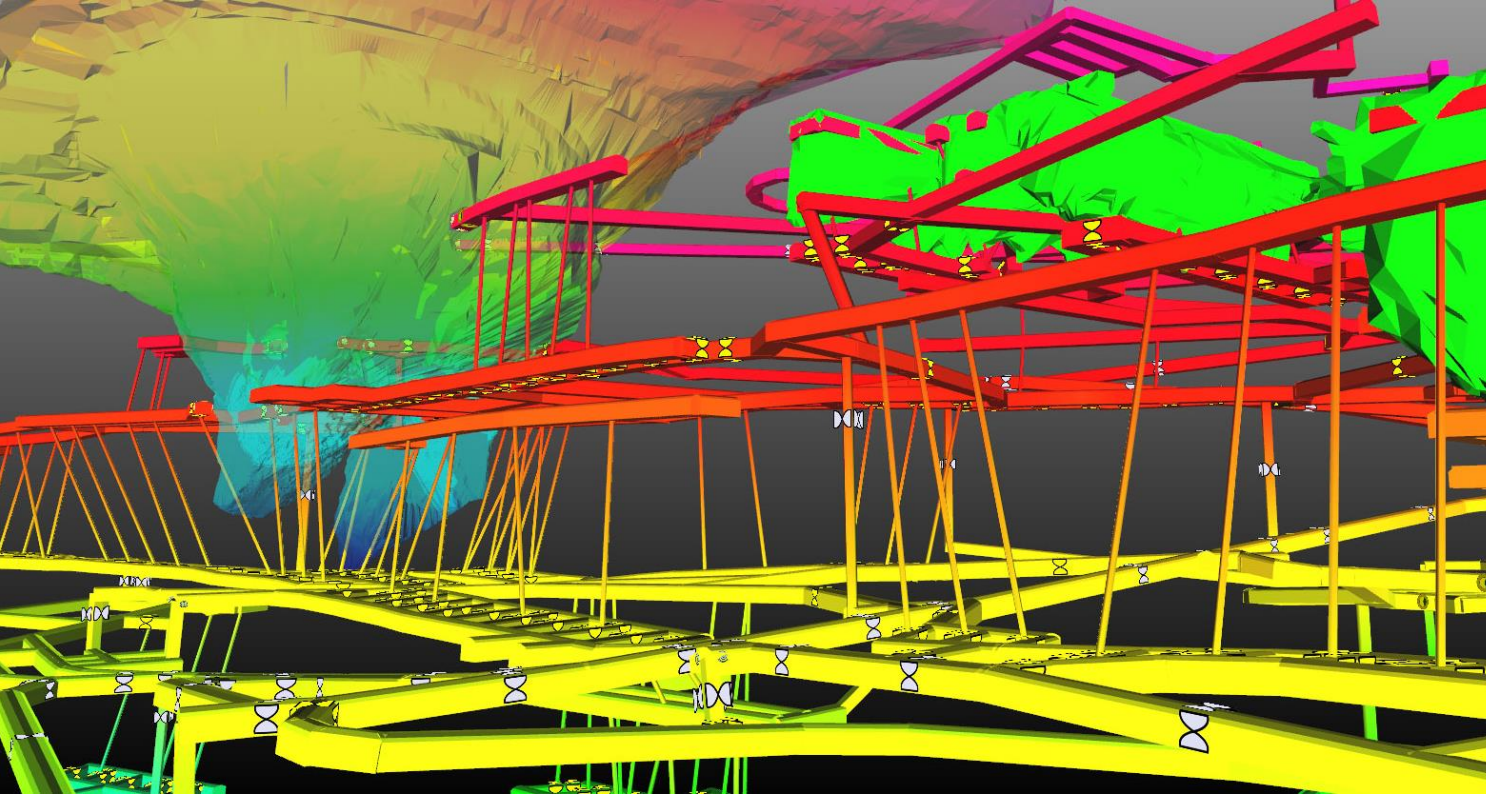


ANALYTICAL SERVICES COMMINATION

Comminution equipment, including a **ball mill**, **jaw crusher**, **cone crusher**, and a range of crushing equipment, allows us to provide a unique mineral comminution service.

We offer **ASTM standard** particle size measurement and bond work index tests to support our crushing and grinding capabilities.





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MINE VENTILATION LABORATORY SERVICES

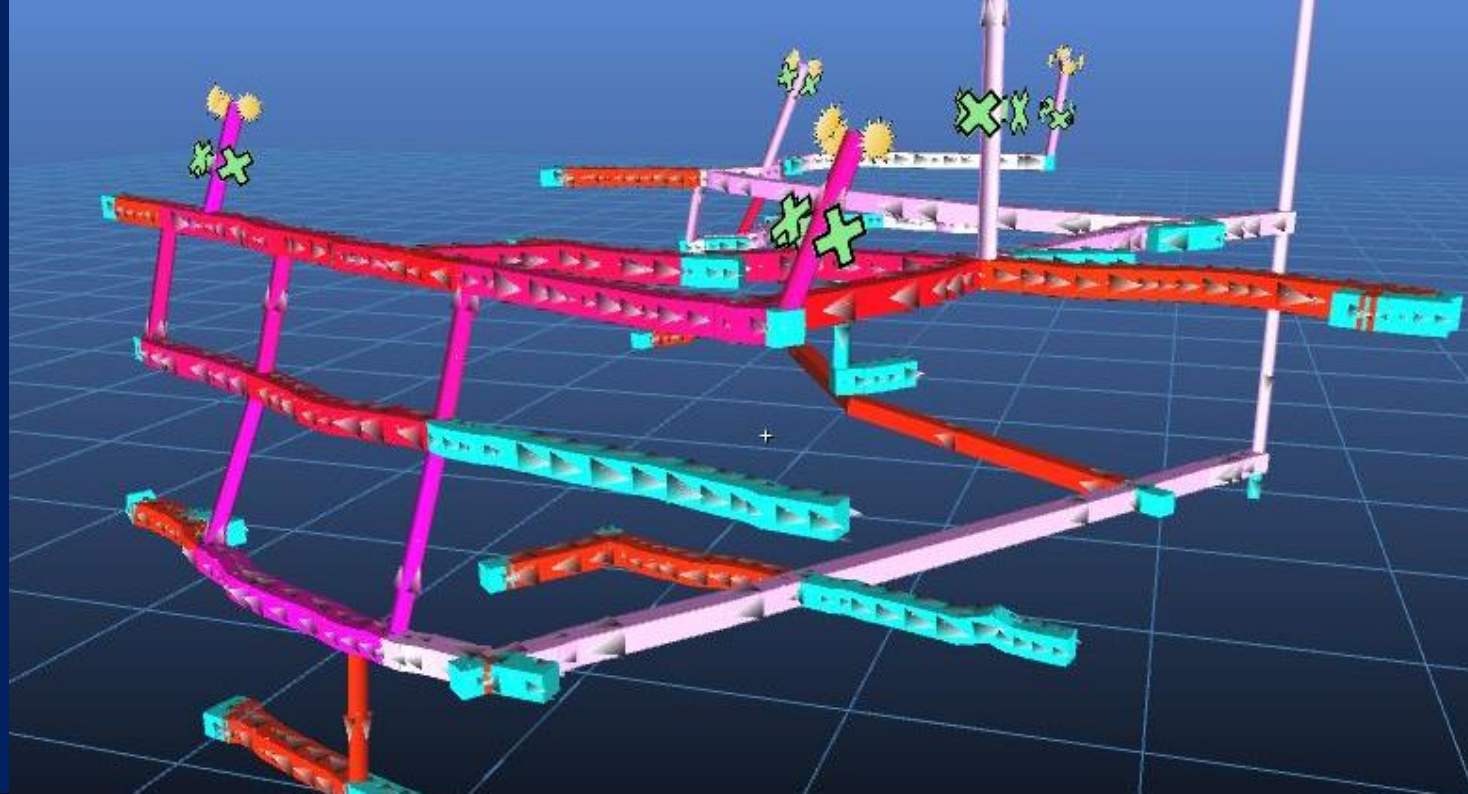


Department of Earth Resources Engineering
University of Moratuwa



VENTILATION SURVEY FOR UNDERGROUND MINES & TUNNELS

- Air Quantity Survey
- Air Quality Survey
- Hygrometric Survey
- Pressure Survey
- Dust Sampling



VENTILATION NETWORK ANALYSIS & DESIGN

Ventilation network analysis deals with complex working procedures to calculate the air currents flowing in the various meshes or branches of a mine or tunnel network. It involves mathematical method of analysing mine resistance to carry out ventilation planning, management, and control.

VENTILATION NETWORK SIMULATION

VentSim* - Rich visual 3D mine ventilation simulation software. Real-time animated 3D graphics represent actual airway dimensions and shapes with animated airflows.

**Available only for research collaborative work.*





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MINING & SURVEYING LABORATORY SERVICES



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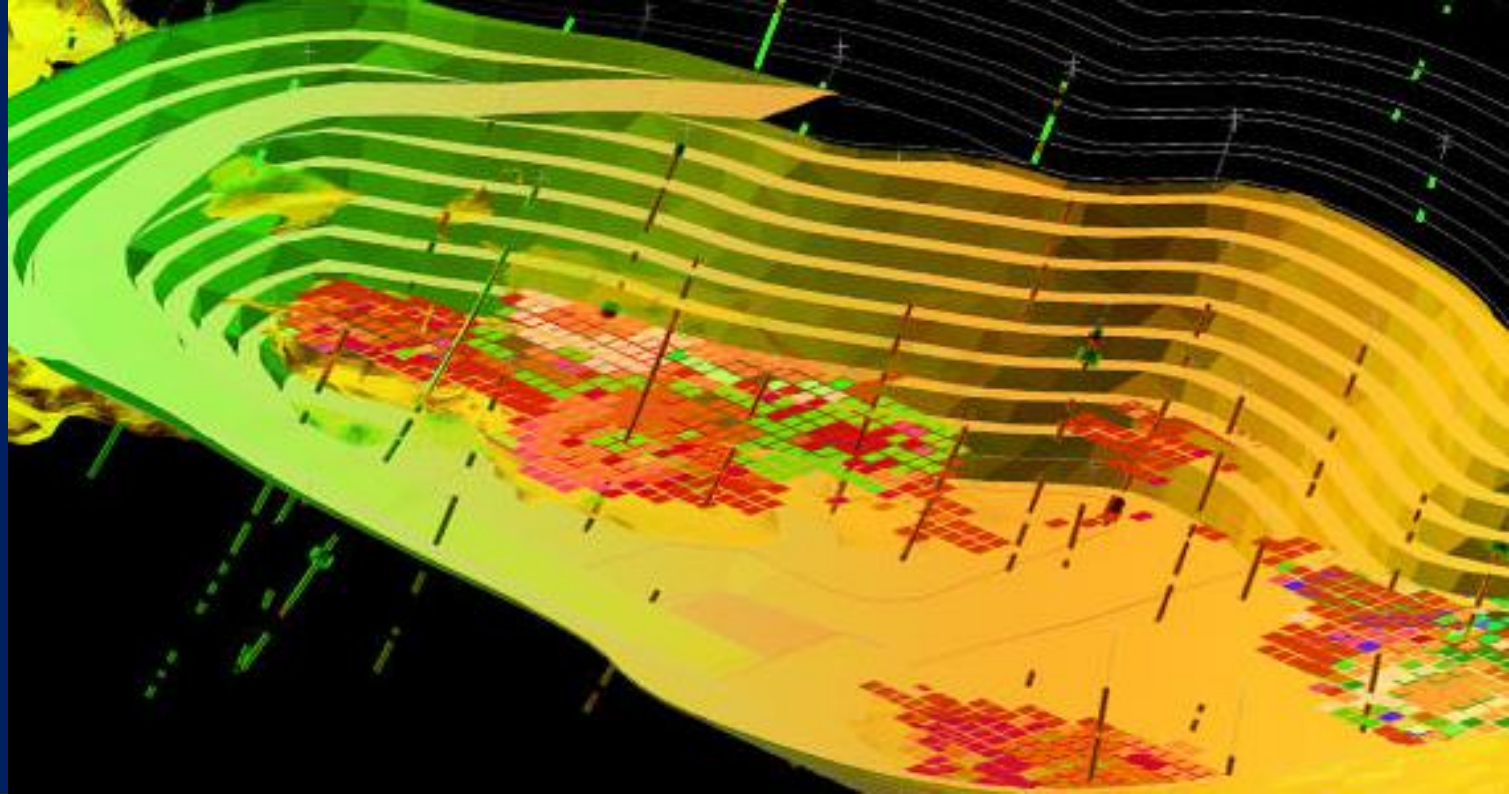
University of Moratuwa



FIELD SURVEYS & MONITORING

- Blast Monitoring¹
- Mine Survey² – Surface & Underground
- Drone Survey

¹Instantel Micromate | ²Leica TS06



SOFTWARE ANALYSIS & DESIGN

- Ore Resources Modelling
- Mine Modelling
- Mine Planning & Design
- Blast Design & Simulation
- Mine Haulage & Hoisting Design
- Mine Reclamation

SOFTWARE PACKAGES

- MineMap IMS*
- Maptek VulCan*
- JKSimBlast*

**Available only for research collaborative work.*

“High Quality Testing
Facilities for
Standard Tests and
Research & Development
Purposes”



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OCEANOGRAPHY
LABORATORY
SERVICES

DEDICATED TOWARDS BETTERMENT





ABOUT US

Department of Earth Resources Engineering posses extensive engineering testing facilities to provide high quality and reliable testing regarding ocean resources engineering studies for both commercial and research purposes. We are committed to offer accurate and trustworthy professional service to the oceanography industry while maintaining international standards.



OUR MAJOR SERVICES

- Particle Size Analysis with Laser Particle Analyser
- Sieve Analysis Test with (ASTM) Standards.
- Bathymetry Surveying
- Current Meter & Turbidity Meter analysis
- Conductivity, Temperature and Depth Profiling
- Grab Sampling (Van Ven/ Ekman) & Short Core Sampling (1m cores possible)
- Core Sampling under shallow water (Upto 5 m)
- Sub Bottom Profile Analysis
- Side Scan Sonar Analysis
- Refraction, Reflection and Polarization Microscopic Analysis
- ICP-MS Analysis for Heavy Metals & Rare Earth Elements



OUR VALUES



“High quality testing facilities for standard tests and R&D purposes”



ROCK MECHANICS LABORATORY SERVICES

Department of Earth Resources Engineering has a Rock Mechanics Laboratory with equipment for rock and aggregate testing

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Precise Measurement
Prompt Turnaround Times
High Quality Reporting





SERVICES OVERVIEW

The design and analyses of any rock engineering project for mining or civil applications require careful mechanical characterization of the the host rock. For this purpose, rock cores are drilled or crushed and rock samples are prepared for laboratory testing. These samples then go through various standard rock mechanics testing procedures to determine several physical and mechanical properties. These properties are typically used for design purposes.

To better help mining and civil engineering companies as well as geotechnical consultants with their rock testing needs, we offer standard intact and aggregate rock testing services using our laboratory testing facility located in the Department of Earth Resources Engineering, University of Moratuwa. We offer the following types of tests:

PHYSICAL PROPERTIES OF ROCKS/AGGREGATES

Water Content

Density

Specific Gravity

Absorption

STRENGTH TEST ON ROCK

Unconfined Uniaxial Compressive Strength (UCS)

Triaxial Confined Compressive Strength

Point Load Index

Brazilian Disc Tensile Strength

AGGREGATE TEST

Los Angeles Abrasion Value (LA AV)

Aggregate Impact Value (AIV)

QUALITY ASSURANCE

Specimen preparation and testing are performed in compliance with the relevant:

American Society for Testing and Materials (ASTM) Standards; and/or

International Society for Rock Mechanics (ISRM) Suggested Methods

The clients receive:

A professional and detailed testing report

