

## Programme: Mine Surveying

Mine surveying is a branch of mining science and technology. It includes all **measurements, calculations and mapping** which serve the purpose of **ascertaining and documenting information** at all stages from prospecting to exploitation and utilizing mineral deposits both by surface and underground working. The following are the principal activities of mine surveying:

- The **interpretation of the geology** of mineral deposits in relation to the **economic exploitation** thereof.
- The **investigation and negotiation of mineral mining rights**.
- **Making and recording, and calculations** of mine surveying measurements.
- Mining **cartography**.
- **Investigation and prediction** of the effects of mine working on the surface and underground strata.
- **Mine planning** in the context of the local environment and subsequent rehabilitation.

### Some of these activities involve:

The location, structure, configuration, dimensions and characteristics of the mineral deposits and of the adjoining rocks and overlying strata. The assessment of mineral reserves and the economics of their exploitation. The acquisition, sale, lease and management of mineral properties. Providing the basis of the planning, direction and control of mine workings to ensure economical and safe mining operations. The study of rock and ground movements caused by mining operations, their prediction, and the precautions and remedial treatment of subsidence damage. Assisting in planning Rehabilitation of Land and affected by mineral operations and collaborating will, local government planning authorities.

<http://www.ism.rwth-aachen.de/index.php/about-ism/statutes>

Mine Surveying is defined as the art of making measurements, calculations and mapping to determine the position of the ore resource relative to the surface. It includes the study of the geology of the deposit, the determination of positions, volumes and quantities that is used in the design, development and excavation of minerals. Some other aspects of the work include Forensic Surveying of incident scenes, monitoring of ground movement, audits of quantities of work performed by contractors and preparing maps and plans.

Mine Surveyors provide information to all mining disciplines and surveying therefore forms a central function on a mine. University of Johannesburg is the only institution in South Africa that offers a full-time contact programme in Surveying, equipping graduates with the necessary competence required for mining operations. In addition, strong links are maintained with the Department of Minerals and Energy Affairs, mining industry and the Institute of Mine Surveyors.

## Responsibilities

Tasks involve the accurate measurement of areas and volumes mined and the precise representation of surface and undergrounds mining on mining plans. Mine Surveyors advise mining engineers about geological areas that can be profitably mined.

## Career Opportunities

Mine Surveyors are employed within the field of mining science and technology, with a key focus on measurements, calculations and mapping for all stages of the mining process.

Mining Engineering is a combination of several areas of expertise. It involves organizing, operating and monitoring mining processes in conjunction with environmental protection and health and safety requirements for underground working conditions. Through technological advancements, the industry has improved production levels and safety whilst simultaneously managing environmental impact. Strategic industry relations provide a platform for graduate.

Mining Companies, software companies for planners, investment companies and more and more opportunities in consulting practices are becoming available.

## Potential Mine Surveying Positions may include:

Technical Services Manager

Development Surveyor

Surface Mining Surveyor

Underground Mine Surveyor

Mining Surveyor

Mine Survey Technologist

Mine Survey Technician

Survey Analyst

Surveyor

Technical Surveyor

Technical Services Manager

Survey Superintendent

Principal Mine Surveyor

Mineral Resource Manager

Mine Planner

Geospatial Engineering Consultant

Geospatial Systems Manager