AFRICAN MINERALS AND GEOSCIENCES CENTRE (AMGC)
LIST OF TRAINING COURSES Jan-Jun 2021

Training Topics	Description	Duration	Tentative Schedule	Fee
Chemical and Environmental Services				
Spectrometric Methods of Analysis.	Theory, operation and maintenance Atomic Absorption Spectrometers (AAS) and X-Ray Fluorescence (XRF).	2 Weeks	18-29 Jan 2021 15-26 Mar 2021 10-21 May 2021	$800
Analysis of Gold and Other Base Metals	Analysis gold and other base metals with a view to wet and dry techniques.	2 Weeks	8-19 Feb 2021 12-23 Apr 2021 14-25 Jun 2021	$800
Quality Management				
Laboratory Certification and Accreditation	Overview on the Certification for ISO 9001:2015 on Quality Management System and Accreditation for ISO/IEC 17025:2017 Standard on Testing and Calibration Laboratories.	2 weeks	15-26 Feb 2021	$1,500
Modern Laboratory Management Methods	Techniques for managing laboratories. Quality performance and compliance issues, Digital management of quality control using Laboratory Information Management System (LIMS) and validation of analytical methods.	2 weeks	18-29 Jan 2021 5-16 Apr 2021	$800
Quality Control and Quality Assurance in Laboratories	Overview on Quality Control (QC) and Quality Assurance (QA), Compliance for quality improvement, Laboratory risk management and Laboratory Quality Management System (LQMS).	2 weeks	15-26 Mar 2021 3-14 May 2021	$1,500

Training Topics	Description	Duration	Tentative Schedule	Fee
Mineralogy, Petrology and Gemmology Services				
Mineralogical and Petrological Sample Preparation and Analytical Techniques	Thin section preparation, Polished section preparation, Petrographic examination	2 Weeks	11-22 Jan 2021 5-16 Apr 2021	$800
Gemstone Identification Techniques	Physical and optical properties of gemstones, working principles of gemmological tools and equipment, Testing and identification of gemstones, Treatments, Quality grading, Synthetic stones	1 Week	1-5 Feb 2021 26-30 Apr 2021	$400
Gemstone Value Addition Techniques	Rough gemstone sorting and grading, different techniques for gemstone cutting (faceting, cabbing and free form carving), evaluation of cut stones	2 Weeks	8-19 Feb 2021 3-14 May 2021	$800
Industrial Minerals Application Services				
Bricks & Tiles Manufacturing [Clays]	Introduction to bricks and tiles, raw materials, preparation, forming, drying and firing by using simple methods	2 Weeks	1-12 Feb 2021	$800
Body Composition Formulation	Single raw material test, shrinkage test, Porosity test, the function of alumina and fluxes in the body, Triaxial blending	2 Weeks	12-23Apr 2021	$800
Mineral Processing and Small-scale Mining Services				
Sampling and Sample Preparation for Laboratory Testing	Sampling, sample preparation and analysis of environmental and geological samples. It provides an understanding of the sampling theory, types of sampling and sampling protocols, involved analytical measurement, composition and classification; sampling quality control; and assays methods	2 Week	11-22 Jan 2021	$800
Artisanal and Small Scale Mining Activities	To provide ASM operators with technical, management and environmental knowledge for sound improvement of their activities. Particular emphasis is on importance of application of improved technics and use of geological data of deposits in environmentally friendly ways for sustainable ASM Activities. Impacts of ASM like mercury pollution, cyanide pollution, direct dumping of tailings and effluents into rivers, threats from improperly constructed tailings dams, river damage in alluvial areas, erosion damage and deforestation, and landscape destruction.	2 Weeks	1-12 Feb 2021	$800

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Techniques of Gold Cyanidation	Detailed accounting of the usage of cyanide for extraction and recovery of gold, and of cyanide toxicity and chemistry. It covers cyanide leaching techniques and gold purification and recovery from solution methods.	1 Week	22-26 Feb 2021 24-28 May 2021	$400
Mineral Economics	Fundamental aspects of the evaluation of mineral investments from examining the mining stages with particular emphasis on cash flow models and project acceptance and rejection criteria. This course also examines the basic approaches and methods of developing evaluations for mineral projects and techniques for risk assessment.	2 Weeks	22 Mar - 2 Apr 2021	$800
Metallurgical Balance and Process Evaluation	The distribution of the various products of a concentrator, and the values contained in them. It provides a basis for decisions making about the mineral processing operations since the values of recovery and grade obtained from the accounting procedure are indications of process efficiency	2 Weeks	12-23 Apr 2021	$800
Extractive Metallurgy – Metallic Ore Deposits, Metal Extraction and Purification Processes	The course deals with ores as raw material and metals as finished products. It covers the introduction to metallurgy, occurrences and properties of metallic ores, uses and commercial classification of metals, metal production and recycling	2 Weeks	3-14 May 2021	$800
Environmental Management in Mining	The negative impacts which could arise from the exploration, operation and decommissioning phase of any mining project small, medium or large scale. It covers topics related to Water Management, Land and biodiversity Management, Waste Management and Air pollution.	1 Week	07-11 Jun 2021	$400

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Geo-information Services				
Geostatistics Application in Geology	Practical experience of using the statistical environment and packages in **R** for exploratory analysis variogram estimation and modelling and optimal estimation of sample values at unsampled sites using kriging.	2 weeks	04-15 Jan 2021 10-21 May 2021	$800
Data Integration and Mineral Targeting	GIS-based spatial data processing, analysis, visualization, and decision-making. The course includes exercises and case studies with the view to develop skills in data capture, data integration, digital mapping, raster and vector geoprocessing, spatial analysis and modeling, and use of GIS as a data management and decision-making tool in earth science. Use of GIS in site suitability analysis and Mineral Prospectivity Mapping using Boolean, Index Overlay, and Fuzzy Logic overlays	2 weeks	25 Jan - 05 Feb 2021 31 May - 11 Jun 2021	$800
GIS and Remote Sensing for Mineral Exploration and Geological Mapping	Geological interpretation of satellite images, to enabling the participant to relate the geological structure and lithology with their geomorphological manifestation. Fundamentals of remote sensing including principles of electromagnetic radiation is needed. Various band combination, band ratios and enhancements techniques for visual interpretation and feature extraction by quantitative methods will be deployed to aid in lithology, structures and hydrothermal alteration zones delineation. The project work will use various types of remote sensing data products over different types of terrain, aims at providing high level of confidence to individual trainee to carry out their assignments in the elated fields in their respective countries.	2 weeks	15-26 Feb 2021 15-26 Mar 2021	$800
Web mapping	Preparation of maps for presentation and display on internet. This include designing of web interface, codding and preparation of web maps, web mapping standards, and setting up of web and mapping servers. Different web mapping services: WMS, WFS, WCS using open source mapping applications.	2 weeks	08-19 Mar 2021 21 Jun - 02 Jul 2021	$800

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Geohazards	Natural hazards related to earth phenomenon are intrinsically related with geosciences. Study of these geoscience phenomena is a path to the mitigation and prevention of the hazardous events on our environment. This course details the causes of geohazards, and possible prevention mechanism.	1 week	01-05 Mar2021 12-16 Apr 2021 03-07 May 2021	$400
Open Source GIS	The widely used GIS applications are proprietary software packages which are very expensive. Due to this a number of Open Source and Free GIS applications have been developed. Some of these applications have grown to be strong and has ability to perform the applications the commercial software are able to do and provide solutions for most of GIS related problems. QGIS and gvSIG are among the Open source and free GIS applications available. This course will enable the trainee to easily acquire and use these applications of GIS.	2 weeks	29 Mar - 09 Apr 2021 24 May- 04 Jun 2021	$800
Image Processing using ERDAS Imagine	In order properly use earth observation images it is important to have accurate geographical referencing and also to have images that display information that can be interpreted based on sound theory of reflectance. On completion of the course the successful student will: • understand the general image processing principles • be proficient in the use of ERDAS Imagine • understand and be able to undertake geometric referencing of images • understand and be able to display image composites for known purposes. • know about the potential and procedures for image processing in a range of application areas: mineral exploration, land use, environmental protection, geohazard and others	2 weeks	19-30 Apr 2021 14-25 Jun 2021	$800