FACULTY OF
ENGINEERING &
THE BUILT ENVIRONMENT

CPD
CONTINUING PROFESSIONAL DEVELOPMENT

Dept. of Chemical Engineering | CPD Course

Mineral Resources and Sustainable Development

Online, 4 August – 3 October 2025

UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

Introduction

Minerals and metals are essential to modern living and are critical to the development of the low-carbon economy. Many countries in Africa are well-endowed with mineral resources that could be used to drive economic growth and improve the quality of human life across the continent. However, the extraction and primary beneficiation of these resources also poses a number of challenges and risks, frequently referred to as Environmental, Social and Governance (ESG) risks, which need to be addressed in order to ensure that mineral resource development is consistent with the principles of sustainability.

Course Objectives

This course sets out to develop a broad-based understanding of both the current and future challenges and opportunities associated with the minerals sector and its contribution to sustainable development, particularly in the context of the African continent.

More specifically the course aims to:

- Create an awareness of how mining is contributing to Sustainable Development. What is mining's role as an agent of development?
- Develop an understanding of the positive and negative impacts of mining along the value chain (from exploration to post mine closure & end use of products)
- Introduce methods to design, deliver and evaluate socio-economic opportunities and environmental stewardship around a mine
- Reflect on the stakeholder engagement, partnerships and critical collaborations necessary to achieve sustainability in the minerals sector
- Assess the role, challenges and opportunities of the Artisanal and Small-scale Mining (ASM) sector in Africa
- Critique current best practices and new frontiers in the context of sustainable development of mineral resources.
- Explore the role players in the minerals sector – their responsibilities and current responses
- Provide an overview of the mechanisms in place to monitor and evaluate sustainable development

Who Should Attend

This course targets professionals from across a spectrum of disciplines who are actively engaged in the minerals sector in a variety of areas e.g. geologists, engineers, economists, planners, strategists, lawyers, regulators, health professionals, safety specialists, environmental officers, social scientists etc. The course is designed to cater for candidates with a diverse level of experience (from interns to senior managers and decision-makers) and is considered particularly beneficial for professionals within the private and public sectors, with at least a national diploma (or equivalent). Candidates should be proficient in English.

Technical Requirements

This course will take place online. Candidates will need to have access to a computer as well as a stable internet connection and data.

Course Format and Delivery

This course comprises 8 modules, which are delivered asynchronously over a period of 9 weeks, including a "catch up" week between modules 4 and 5. At the beginning of each of the 8 active learning weeks, a new module is unveiled, allowing candidates to download and engage with the lessons and materials at their own pace and convenience. A live discussion session is held via zoom once a week, to allow for questions and share reflection on learnings. Learning time in each week is estimated at 15 hours, amounting to approximately 120 hours of learning time in total. It should, however, be recognised that this learning time may vary slightly for each candidate.

The course is delivered through a series of video lectures, individual readings and short assignments, and is designed to promote "active" learning through reflection, discussion, investigation and creation. Candidates will be required to keep a reflective journal documenting their learnings and key take-away messages over the course of the 9 weeks.

Course Description

A brief description of the various modules is provided below.

Module 1: Introduction to the Course and the Context of Mining (week 1)

This module introduces the course and the social, economic and political context of mining, exploring the historical and current relationships between mining and national economies particularly from an African perspective. It also provides an overview of the fundamentals of mining and provides context for mining related activities.

Module 2: Sustainable Development and Sustainability (week 2)

This module introduces the concepts of sustainable development and how mining impacts on sustainable development and sustainability on a local, national and global scale.

Module 3: Environmental Impacts and Stewardship (week 3)

This module introduces the significant impacts that mining operations can have on the environment and the socio-economic consequences of these impacts. It also explores the strategies that are used to manage and mitigate these impacts.

Module 4: Governance and Social Issues (week 4)

This module focuses on the role of governance and stakeholder engagement in mineral resource development. The module explores how to engage with different stakeholders and design, and to deliver and evaluate social and economic development opportunities around a mine.

Module 5: Artisanal and Small-scale Mining (week 6)

This module introduces Artisanal and Small-scale Mining (ASM), exploring its benefits and challenges to sustainable development, with specific focus on the sub-Saharan African context. The module also provides a high-level look at policy, governance and legislation of the ASM sector and the ongoing journey towards formalisation of the ASM sector.

Module 6: Mine Closure (week 7)

This module explores the different aspects of mine closure - why it is an important phase in the life of a mine - and the environmental and socio-economic risks associated with the closure of mines. The topics in the module also cover policy and regulations around mine closure, best practices, and the development of post-mining economies.

Module 7: Innovation and Future Frontiers (week 8)

This module reflects of the “mine of the future” and attributes the future workforce. It also explores the key external pressures and driving innovation within the industry, and the progress that industry has made in responding to these pressures.

Module 8: Sustainability Performance Monitoring and Reporting (week 9)

This module introduces the basic tools and concepts of corporate sustainability reporting, critiques the quality and usefulness of current reporting, and explores future trends in this regard.

Course Convenor

Prof Jennifer Broadhurst has more than 40 years of research and education experience in the field of minerals beneficiation within industry and academia. With a background in fundamental process and environmental chemistry, her research interests over the past 15 years have expanded to include the broader sustainability challenges (environmental, economic and social) facing the resource extraction sector and the inter-generation burdens these places on mining communities, particularly in the South African and African contexts.

Course Overview

Course Dates	4 August – 3 October 2025
Delivery format	Online
CPD	12 CPD points, ECSA registration number: *UCTMRSD25*
Fees	SAIMM members: R22 500 Standard fee: R25 000

Registration

Registration and Cancellation

- Register online
- Registration covers attendance of all sessions of the course and course material.
- Registrations close on 11 July 2025. Confirmation of acceptance will be sent on receipt of a registration form. If you are an SAIMM member, you will be requested to send your SAIMM membership number to the course administrators.
- Cancellations must be received by 11 July 2025, or the full course fee will be charged.
- For more information on application and registration procedures, please visit our website.

Certificates and CPD Points

Complete attendance of the entire course and successful completion of the full set of assignments will lead to the awarding of a certificate of completion.

All UCT short course certificates are now issued in online digital format. For further information, please visit: Digital Certificates at UCT

According to guidelines set out by the Engineering Council of South Africa, attendance of this course will earn participants 12 points towards Category 1 (Developmental Activities). The ECSA validation number for this course is *UCTMRSD25.*

Contact details

For more information or details on CPD courses, visit our website or contact us.

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