



# **MACHAKOS UNIVERSITY**

**University Examinations For 2021/2022 Academic Year**

**SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT**

**DEPARTMENT OF ENVIRONMENTAL SCIENCES**

**FOURTH YEAR SECOND SEMESTER EXAMINATION FOR**

**BACHELOR OF ENVIRONMENTAL SCIENCE**

**ENS 454: MINING AND SUSTAINABLE DEVELOPMENT**

**DATE: 15/12/2021**

**TIME: 8.30-10.30 AM**

---

**INSTRUCTIONS: Answer question ONE and TWO other questions**

## **QUESTION ONE (30 MARKS)**

- a) Explain how mining influences the economic development of your County. (10 marks)
- b) Discuss ways of protecting surface water resources from mining activities. (10 marks)
- c) Highlight FIVE ways of utilizing areas where mining activities have ceased. (10 marks)

## **QUESTION TWO (20 MARKS)**

Discuss the need for an effective monitoring programme in areas where mining operations occur.

## **QUESTION THREE (20 MARKS)**

Using an illustration, discuss various strategies of ensuring sustainable mining operations in Kenya.

## **QUESTION FOUR (20 MARKS)**

Discuss various ways of handling the adverse impacts of Acid Rock Drainage.

## **QUESTION FIVE (20 MARKS)**

Discuss key safety and health challenges associated with mining operations and explain how to manage the challenges.