



FACULTY OF ENGINEERING AND ENVIRONMENT
DEPARTMENT OF MINING ENGINEERING
COMPUTER APPLICATION IN MINING
EMI 2202
Final Examination Paper

This examination paper consists of 4 pages

Time Allowed: 3 hours

Total Marks: 100

Examiner's Name: Mr. T. Dombo

INSTRUCTIONS

1. **Answer all questions**
2. Each question carries 20 marks
3. Use of calculators is permissible

Additional Requirements

Calculator

MARK ALLOCATION

Question 1 to 5	Total 20 marks
Part Questions	As shown in each part question
Total Attainable	100 marks

ANSWER ALL QUESTIONS

QUESTION 1

- (a) What do you understand by block modeling in mining engineering? (2)
- (b) List and discuss softwares which can be used to mold a block model. (8)
- (c) What are the limitations of each software discussed above? (10)

QUESTION 2

With reference to the software of your choice, discuss the advantages of using mine planning and design software over manual planning and design. (20)

QUESTION 3

- (a) What are the applications of robotics in mining industry? (6)
- (b) Explain about GPSS and SLAM. (6)
- (c) Define conditional simulation models and their purpose. (4)
- (d) Discuss the problems an engineer should cognizant of when dealing with block models. (4)

QUESTION 4: SURPAC MINING DESIGNING SOFTWARE

- i. Describe the following terms as used in mine application software;
 - (a) Point. (1)
 - (b) String. (1)
 - (c) Digital terrain mode (DTM). (1)
 - (d) Ventilation Database (1)
 - (e) Survey Database (1)
 - (f) Block model (1)
 - (g) Macros (2)
 - (h) Plot files (2)
 - (i) Plugins (2)
- ii. Differentiate between function centric and data centric operations (4)
- iii. Describe the difference between Digital terrain mode (DTM) surfaces and three-dimensional solid models. (2)
- iv. Distinguish between Break line strings and spot height strings used in modelling of DTM surfaces. (2)

QUESTION 5

Discuss the role of Enterprise Resource Planning (ERP) in any mining organisation of your choice. (20)

END OF EXAMINATION