

ROCK ENGINEERING PRACTICAL EXAM

CANDIDATE RULES AND RESPONSIBILITIES

Introduction:

This evaluation will test your ability to integrate all competencies and skills to derive an optimum solution to rock engineering problems. These may include:

- **Basic mining knowledge.** A good rock engineer understands mining constraints i.e. cleaning, ventilation, people, etc.
- **Financial costing.** Candidates need to have a sense of costs involved and the impact on the overall production costs. Part of a rock engineer's function is safe, economic design.
- **Problem-solving nature.** The candidate must show a strong analytical and problem-solving nature. An example will be the analysis of accidents, which may result in changes to standards and procedures.
- **Literacy skills.** As the rock engineer communicates both verbally and via written reports, it is important that these skills are properly assessed. The ability to clearly communicate recommendations is an integral part of rock engineering. Examples may be report writing, which is essential for fatal inquiries and everyday duties.
- **People management.** More than 80% of a rock engineer's work relates to communication with management, production officials and company representatives as well as colleagues.
- **Relationship management.** Ability to sell ideas, convince the implementers to follow his/her recommendations.

What to expect and general guidelines:

- 1) The assessments will be conducted via video conferencing (Microsoft TEAMS).
- 2) The exams will start at 08:00. Each candidate will be allocated a time slot to log into their respective sessions.
- 3) There will be two senior examiners per candidate per section. At least one of the examiners will be independent, preferably both.

- 4) The following sessions will be conducted:
- a. **Part 4.1 Metalliferous** - 1 combined planning section* as well as portfolio section.
 - b. **Part 4.2 Coal Mining** - 1 combined planning section** as well as portfolio section.
 - c. **Part 4.3 Massive Mining** - 1 planning section as well as the portfolio section.
 - d. **Part 4.4. Surface Mining** - 1 planning section as well as the portfolio section.

** Combined sessions consisting of 50% conventional and 50% bord and pillar planning*

*** Combined sessions consisting of 50% underground and 50% surface planning*

- 5) You will have a maximum of two (2) hours per section to complete the exam.
- 6) The pass rate for each section is 60%.

Planning Sessions:

- 1) The planning sessions take on the format of a normal monthly mine planning session. Questions will be based mainly on the plans, which will be presented to you during the exam, but may also be general questions to test the candidate's knowledge, experience, and understanding. i.e. you may expect questions such as *"How will you mine this particular block of the ground?"* or *"what monitoring instrumentation is suitable for this area?"* or *"Analyse and discuss the following numerical modelling results"*
- 2) The individual planning sections will be drafted by senior experts. The examiners will have module answers as a guideline, but the aim of the exam is to test the candidate's experience and competence, therefore, in some instances, there may be more than one correct answer to a question. You, as the Candidate, have the responsibility to convince the examiners of your answers based on your knowledge and experience.
- 3) The exam is not an education session, and examiners will mark negatively, i.e., the exam will stop once you have lost 40% of the total marks. Please note that the examiners are under no obligation to finish the planning session once the candidate has clearly failed it (lost more than 40% of the marks).
- 4) Exams will be via a dial-in meeting. Plans, photos and graphs will be displayed on screen from where questioning/discussions will take place.

Portfolio Sessions:

- 1) The purpose of the assessment is *“to assess the candidate’s ability to practice as an independent rock engineer”* as required by the MHSA regulation 14.1(8).
- 2) Your examiners will receive your portfolio, as well as any communication between you and the chairperson, at least one month before the exam. The examiners will then pre-evaluate your portfolio separately, and draft questions for the exam, based on your portfolio.
- 3) On the day of the exam, the examiners will discuss your portfolio background briefly, and then ask you the questions they have prepared for you, whilst moving systematically through the portfolio reports.
- 4) You must come prepared! It is expected that you should be able to justify and explain all input parameters, design criteria, assumptions, calculations, designs, equations, and recommendations.
- 5) You must also provide the original documents if you had to summarize work to suit the portfolio length requirements.
- 6) You are allowed to make notes on your work and reference it during the exam.
- 7) Any form of plagiarism may result in your suspension from attempting further exams for a period up to two years.

Candidate Rules and Responsibilities and Guidelines

- 1) **Be on time!** No latecomers will be examined. Candidates who are 5 minutes late will not be allowed to attempt the examination; will forfeit their examination (including examination fee) and only be able to attempt the following practical examination following full re-application.
- 2) Keep in mind that this will be a virtual exam. Make sure you know how to log into a meeting and how to use the software well in advance.
- 3) Come prepared - Yes, even for the planning sessions! Study rules of the game, refresh your basic mining layout and rock engineering principles, practice drawing sections, and calculating basic information from a plan. Bring your own stationery (scale ruler, calculator, pen/pencil, etc.)
- 4) Respect the time and effort of the examiners and other candidates. Keep in mind that it is a long day for them too, that they are also human, and that examiners give up their valuable time and effort-free of charge. If you don't know the answer, say so honestly, and allow the exam to move along. Please do not waste time.
- 5) Cheating in the form of assistance by third party, googling/searching online for the answers, looking answers up in textbooks, or telephonic communication with a third party will result in the exam being stopped and declared invalid.
- 6) Phone communication is only allowed with direct examiners or the exam chairperson should there be a technical issue.
- 7) Any concerns with regards to the examination must be brought forward to the Education Committee within two (2) working days following the examination.
- 8) You may contact the chairperson with any questions prior to- and following the exam in order to give you the best possible opportunity to be prepared: andreas.esterhuizen@ohms.co.za