



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

RULES AND SYLLABI FOR THE

ELECTRICAL AND MECHANICAL ENGINEER'S

GOVERNMENT CERTIFICATE OF COMPETENCY

APPROVED

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1 INTRODUCTION

The following instructions, rules and syllabi for the examinations are framed in terms of Minerals Act Regulation 28.6 in force in terms of Schedule 4(4) of the Mine Health and Safety Act, (Act No.29 of 1996), as amended.

1.1 The following Government Certificates of Competency are issued by the Chief Inspector of Mines:

- a) Certificate of Competency as Electrical Engineer for Mines and Works
- b) Certificate of Competency as Mechanical Engineer for Mines and Works.

1.2 Written examinations for each of these certificates are conducted in June and November by the Department of Higher Education and Training (DHET) in collaboration with the Commission of Examiners of the Department of Mineral Resources (DMR) and the Department of Labour (DoL).

2 PURPOSE

The purpose of this directive is to:

- 2.1 Prescribe instructions for guidance for the examining and issuing authority, the rules for conducting the examination/assessment for Electrical and Mechanical Engineers' Certificates for Mines and Works in line with DMR applicable examination policy for Government Certificates of Competency examinations;
- 2.2 Specify the syllabi for the subjects of the examination/assessment in terms of the Minerals Act Regulation 28.6;
- 2.3 Structure the examination/assessment to comply with the rules applicable for the conducting of the examination/assessment for Electrical and Mechanical Engineers' Certificates for Mines and Works; and
- 2.4 Ensure that the examinations/assessment for the Electrical and Mechanical Engineers' Certificates for Mines and Works are conducted in a way that is lawful, fair, transparent, consistent and reasonable.

3 SCOPE

These examination rules are applicable to Electrical and Mechanical Engineers' Certificates for Mines and Works.

4 APPLICATION FOR ACCEPTANCE TO COMMENCE TRAINING

4.1 ACADEMIC QUALIFICATIONS

- a) A BSc degree in Electrical Engineering - (Heavy Current)

- b) A BSc degree in Mechanical Engineering
- c) B Tech degree in Electrical (Heavy Current) Engineering
- d) B Tech degree in Mechanical Engineering
- e) Semester or “S” courses and diploma complete with relevant practical experience towards obtaining qualification, i.e., P1 and P2
- f) An Electrical, Fitter and Turner or Electro/mechanical trade and a N6 diploma, **Annexure A**, for acceptable trades. All relevant subjects must be passed at 50% and above

4.2 EVALUATION OF ACADEMIC QUALIFICATION SUBJECTS

- a) All degrees and diplomas must be evaluated by selected approved bodies to ensure that the appropriate subjects have been covered for acceptance, **Annexure B**.

4.3 FOREIGN ACADEMIC QUALIFICATIONS

- a) Applicants who wish to be accepted as candidates and who are in possession of a foreign degree, diploma or certificate in engineering, or who are in possession of engineering qualifications must have such degree, diploma or certificate evaluated by the South African Qualifications Authority (SAQA), to check what additional subjects, if any, must be passed in order to comply with the requirements for acceptance.
- b) A request for evaluation must:
 - i. Indicate that it is for the Engineer’s Certificate of Competency;
 - ii. Include a list of the subjects, including marks obtained, which led to the obtaining of the degree, diploma or certificate; and
 - iii. Indicate its equivalence to a South African qualification including National Qualifications Framework (NQF) level.
- c) A copy of the evaluation and a certified copy of the degree, diploma or certificate must accompany the application for acceptance to continue with training.

4.4 APPLICATION FOR ACCEPTANCE TO COMMENCE TRAINING AS AN ENGINEER

- a) The person who would like to attempt Electrical and Mechanical Engineers’ Certificates for Mines and Works, must first apply to the DMR for acceptance by the Commission of Examiners to commence his/her training through his/her employer.
- b) Application should be done by submitting the following copies:
 - i. Application form to commence training as an Engineer with proof of payment;
 - ii. Identity document/smart card/passport;
 - iii. Academic qualification along with academic record/schedule of results;
 - iv. Letter of evaluation from SAQA, if foreign qualification;
 - v. Letter from the Department of Higher Education and Training, if applicable for N6 certificates;
 - vi. Trade test certificate or apprenticeship contract, if applicable; and
 - vii. Letter of evaluation of subjects to qualify as candidate.

- c) All submitted copies must be originally certified by South African Police Service (SAPS) only and not older than three (3) months.
- d) The documents must be arranged as per instructions in the application form.
- e) If not complete, the candidate will **NOT** be accepted and will be required to repeat application.
- f) All applications should be submitted in advance prior to the closing date to allow sufficient time for assessment of eligibility.
- g) Any document submitted or re-submitted after the closing date will disqualify the application for the next scheduled set of examinations.
- h) The candidate, if application is successful will, purchase an Annexure “E” book at a cost of R500,00, that must be completed before he/she can apply for acceptance to write the examination.
- i) The applicant must be able to demonstrate that he/she has at least two (2) years post graduate appropriate practical experience in the maintenance and operations of electrical and mechanical machinery, satisfactory to the Commission of Examiners and of which at least one (1) year must have been at a mine in the Republic of South Africa (RSA).
- j) Each Annexure E book will have unique serial number belonging only to that candidate.
- k) All Annexure E modules must be 100% completed before a candidate can be deemed to have completed compulsory two (2) year practical training.

4.5 COMPLETION OF TRAINING

- a) The candidate must fully complete the Annexure E.
- b) The Resident Engineer signing off the document must fill his/her relevant details as required on the space provided for in Annexure E.
- c) The individual modules must be signed off by a Resident Engineer who has been registered with the DMR as a mentor.
- d) An approved DMR mentor must:
 - i. Be the holder of an Mine Engineers’ Certificate of Competency;
 - ii. Have experience in the mining sector by holding a legal appointment for a period longer than three (3) years; and
 - iii. Have evaluated the candidate on the area that he is required to sign and declare the candidate competent.
- e) The DMR approved mentor must have applied and approved by the DMR through submission of the following documents:
 - i. Copy of identity document/smart card;
 - ii. Copy of Government Certificate of Competency;
 - iii. Proof of being a holder of legal appointment; and
 - iv. Certificate of competence as a mentor from an accredited training provider.

NB: All submitted copies must be South African Police Service (SAPS) originally certified and not older than three (3) months.

5 APPLICATION FOR ACCEPTANCE TO WRITE EXAMINATION

5.1 APPLICATION WITH DMR

- a) The candidate who on completion of training and deemed to be ready to attempt examination, must apply to the DMR for eligibility to write examination through submission of the following documents:
 - i. Completed application form for examination;
 - ii. Identity document/smart card/passport as proof that such person has reached the age of 23 years;
 - iii. Marriage certificate, if applicant married after application was submitted;
 - iv. Letter of sobriety (good conduct) from Resident Engineer on a formal mining company letterhead with contact details;
 - v. Record of service on mining company's letterhead with contact details indicating start and end dates of training; and
 - vi. 100% completed Annexure E.
- b) Candidates who commenced training in foreign countries must prove that they have completed one (1) year training in a South African mine.
- c) All submitted copies must be originally certified by South African Police Service (SAPS) only and not older than three (3) months.
- d) The documents must be arranged as per instructions in the application form.
- e) All applications should be submitted in advance prior to the closing date to allow sufficient time for assessment of eligibility.
- f) Any document submitted or re-submitted after the closing date will disqualify the application for the next scheduled set of examinations.

5.2 ACCEPTANCE BY THE DMR

- a) The candidate who has been accepted by the DMR to write examination will be issued with an acceptance letter which is valid for two (2) years or four (4) consecutive examinations.
- b) The DMR letter of acceptance must be safely kept and its original produced when necessary until expiry after two (2) years.

5.3 REGISTERING TO WRITE EXAMINATION WITH DHET

The candidate accepted by the DMR to write examination must:

- a) Apply to write examination at a DHET centre only approved by the DMR, **Annexure C**;
- b) No credit will be given for examination written at a non-approved DMR examination centre;
- c) Application should be done through the following:
 - i. Completion of relevant application form at DHET examination centre approved by DMR;
 - ii. Presentation of the DMR acceptance letter;
 - iii. Presentation of the certified copy of identity document/smart card/passport; and
 - iv. Payment of prescribed examination fees to DHET.

5.4 WRITING THE EXAMINATION

- a) Examinations for both Plant Engineering and Legal Knowledge are written in June and November of every year respectively.
- b) Candidates are advised to ensure that they apply in advance prior to the closing date for the upcoming examinations.
- c) The candidate will be required to:
 - i. Write examination on the prescribed date and time at the approved examination venue;
 - ii. Present original DMR acceptance letter to the examination venue;
 - iii. Present registration letter from DHET; and
 - iv. Present original identity document/smart card/passport to the examination venue.

6 PASSING THE EXAMINATION

- a) To qualify for a Certificate of Competency as Electrical or Mechanical Engineer for Mines and Works, the candidate will be required to:
 - i. Pass 50% and above per subject, Plant Engineering and Legal Knowledge (Health and Safety Act and Regulations) examinations within two (2) years, i.e., in four (4) consecutive examinations.
- b) A candidate who is unsuccessful in obtaining the certificate within two years will forfeit subject already passed
- c) The results obtained by a candidate in any examination will **NOT** be recognised by the Commission of Examiners, if such candidate entered for the examination without having obtained a letter of acceptance from the Commission of Examiners.

6.1 NON-COMPLETION AND POOR RESULTS

- a) A candidate will be required to pass examination and obtain certificate within two (2) years i.e. in four (4) consecutive examinations from date of acceptance.
- b) A candidate who has not obtained his/her certificate within the prescribed period will be stopped from any further writing of examinations and will be:
 - i. Expected to re-apply to write the examination after a further training period of one (1) year, if he/she has not obtained above 20% for a subject during two (2) consecutive examination attempts;
 - ii. Required to re-apply for acceptance to write the examination;
 - iii. Expected to submit proof of retraining with his/her application, if he/she is re-applying to write after a period of one (1) year due to poor results, i.e., below 20%;
 - iv. Required to redo the whole of Annexure "E" and re-apply for acceptance to be an Engineer-in-Training, if he/she has attempted to write for two (2) periods of two (2) years and still does not pass both subjects.

NB: A candidate who has passed one (1) of the two (2) subjects, that passed subject will be cancelled and he/she will be required to redo both subjects.

6.2 RENEWAL OF ACCEPTANCE LETTER

- a) Renewal of acceptance letter after two (2) years, i.e. in four (4) consecutive examinations from date of acceptance will be considered only after the candidate has re-applied for acceptance letter and renewal will be based on the results of the previous written examinations.
- b) If the results of the examinations have been below 20%, the candidate will be required to be re-evaluated by the members of the Commission before the re-issue of the acceptance letter.

7 EXAMINATION RESULTS

Candidates are to note that:

- a) There will be no issuing of telephonic results;
- b) They must check with examination centres where they wrote at;
- c) They must obtain copy of examination results from DHET;
- d) Any application for remarks are to be directed to DHET; and
- e) Any appeal of outcome of remark results is to be done in collaboration with mentor.

8 APPLICATION TO BE ISSUED WITH CERTIFICATE

- a) A candidate who has successfully completed his examination must submit the following to the DMR for the issuing of the certificate:
 - i. Signed application letter requesting to be issued with a certificate;
 - ii. Copy of the official DHET certified and signed results with date stamp;
 - iii. SAPS certified copy of identity document/smart card which is not older than three (3) months; and
 - iv. Signed certificates must be collected in person upon presenting of original identification.
- b) The file will be checked and any abnormalities identified must be corrected before the certificate is issued.
- c) The certificate holder in whose name the certificate is issued, is the only person allowed to collect his/her own certificate. The alternative will be to:
 - i. Write and originally sign letter of consent and issue same to the person collecting certificate on behalf of certificate holder;
 - ii. The person collecting certificate must submit his/her own South African Police Service (SAPS) certified copy of ID/passport plus that of the certificate holder. Certified copies must not be older than three (3) months

9 ALTERNATE CERTIFICATES

- a) The holder of a Certificate of Competency as Mechanical Engineer who wishes to qualify for a certificate, as Electrical Engineer shall re-apply for acceptance as candidate together with proof of appropriate experience (appointment letter(s) as an engineer in charge of machinery).

- i. Such experience shall be satisfactory to the Commission of Examiners and shall consist of at least two (2) years' experience in the maintenance and operation of electrical machinery or at least four (4) years "mixed" experience in the maintenance and operation of both electrical and mechanical machinery, which was gained after the acquisition of the mechanical certificate.
 - ii. The applicant will also be required to produce proof obtained from a Technikon or Technical College of passing the subjects required to cover the syllabus for the Certificate of Competency as Mechanical Engineer, with a mark of 50% and above.
- b) The holder of a Certificate of Competency as Electrical Engineer who wishes to qualify for a certificate, as Mechanical Engineer shall re-apply for acceptance as a candidate together with proof of appropriate experience (appointment letter (s) as an engineer in charge of machinery).
- i. Such experience shall be satisfactory to the Commission of Examiners and shall consist of at least two (2) years' experience in the maintenance and operation of mechanical machinery or at least four (4) years "mixed" experience in the maintenance and operation of both mechanical and electrical machinery, which was gained after the acquisition of the electrical certificate.
 - ii. The applicant will also be required to produce proof obtained from a Technikon or Technical College of passing the subjects required to cover the syllabus for the Certificate of Competency as Mechanical Engineer, with a mark of 50% and above.

10 EXEMPTIONS

- a) The holder of a Certificate of Competency for "Factories" who wishes to qualify for the equivalent certificate for "Mines and Works" shall re-apply for acceptance as a candidate together with proof of at least one (1) year's experience in the maintenance and operation of appropriate machinery at a mine as per the Annexure E, satisfactory to the Commission of Examiners and after acceptance will be required to pass both Plant Engineering and Legal Knowledge.

11 SYLLABI

- a) Both subjects (Plant Engineering and Legal Knowledge) are closed book examinations.
- b) They are written over duration of three (3) hours per session.
- c) Candidates may not use alphanumerical or programmable calculators in the examination room.

11.1 PLANT ENGINEERING

- a) The syllabi for Plant Engineering, **Annexure D**, examination question paper consist of both electrical and mechanical questions, with a limited choice of questions.

11.2 LEGAL KNOWLEDGE

- a) The syllabi for Legal Knowledge, **Annexure E**, includes the practical application of the Act and Regulations.
- b) This implies an understanding of the Act and Regulations rather than committing the wording to memory only.
- c) There is no choice of questions and all questions must be answered.

12 EXAMINATION IRREGULARITIES

- a) Any alleged examination irregularities by candidates before, during and after the examination process shall be reported to the Training Manager for referral and investigation by the Commission of Examiners for decision making.
- b) A candidate who has been proven to have cheated or used illegal means to pass or obtain certificate of competency shall be suspended from writing an examination for a period of ten (10) years.
- c) The recommendation by the Commission of Examiners based on applicable procedures will be sent to the CIOM for approval and the candidate will be advised accordingly.

ANNEXURE A

ACCEPTABLE TRADES AND EXPERIENCE

Trades in which the minimum appropriate post-apprenticeship experience been served in the general maintenance and operation of machinery.

TRADE	YEARS
Aero engine fitter, ground engineer or equivalent	2 years as a fitter or electrician on a mine
Armature winder	2 years as a fitter or electrician on a mine
Blacksmith	3 not as a blacksmith but 3 years as a fitter or electrician on a mine
Boilermaker	3 not as a boilermaker but 3 years as a fitter or electrician on a mine
Diesel Mechanic	2 not as a diesel mechanic but 2 years as a fitter or electrician on a mine
Electrician	2 years on the mine
Engine-room fitter	2 years on the mine
Fitter	2 years on the mine
Fitter and armourer	3 but 2 years as a fitter or electrician on a mine

Fitter and rigger (Air Force)	2 years on the mine
Fitter and turner	2 years on the mine
Instrument mechanic or instrument maker	4 not as an instrument mechanic but 2 years as a fitter or electrician on a mine
Instrument Technician	2years not as an Instrument Technician
Lift mechanic	2 years on the mine
Millwright	2 years on the mine
Motor mechanic	2 years not as a motor mechanic but 3 years as a fitter or electrician on a mine
Refrigeration mechanic	3 but 2 years as a fitter or electrician on a mine
Tool and die maker	2 but 2 years as a fitter or electrician on a mine
Welder	4 but 2 years as a fitter or electrician on a mine not as a welder

ANNEXURE B

EVALUATION OF SUBJECTS FOR ACCEPTANCE ELIGIBILITY

ELECTRICAL

Mechanics, Oscillations, Waves and Theory of Heat
 Engineering Graphics
 Electricity, Magnetism, Optics, Atomic and Nuclear Physics
 Process Drawings
 Materials Science
 Statics and Mathematical Modelling
 Electrotechnics
 Operations Management for Engineers
 Operations Research
 Thermodynamics
 Engineering Statistic
 Control Theory
 Manufacturing Technology
 Decision Support Systems
 Systems Engineering
 Databases and Web-programming
 Business Engineering and Design

MECHANICAL

Electricity, Magnetism, Optics, Atomic and Nuclear Physics

Engineering Graphics
Materials Science
Electrotechnics
Strength of Materials
Engineering Materials
Thermodynamics
Dynamics
Numerical Analysis
Engineering Analysis
Professional Practice
Fluid Mechanics
Strength of Materials
Mechanical Design
Structural Analysis
Machine Design
Thermal Machines
Heat Transfer
Fluid Machines
Systems Engineering
Air conditioning and Refrigeration
Manufacturing Technology
Thermal Fluid System Design
Machine Dynamics
Nuclear Engineering
Engineering Management

ANNEXURE C

DMR APPROVED MECC EXAMINATION CENTRES			
PROVINCE	TOWN	CENTRE NAME	CENTRE NUMBER
Eastern Cape	Port Elizabeth	Russell Road Campus	499995419
Free State	Welkom	Welkom Campus	399995315
Gauteng	Carletonville	Carletonville Campus	899995807
	Krugersdorp	Krugersdorp Campus	899990893
	Pretoria	Centurion Campus	899995843
KwaZulu-Natal	Durban	Durban Campus	599995503
	Richards Bay	Richtek Campus	599995517
Limpopo	Phalaborwa	Phalaborwa Campus	799995705
	Seshego	Seshego Campus	799990707
Mpumalanga	Evander	Evander Campus	699995604
	Witbank	Witbank Campus	699995611
North West	Klerksdorp	Jouberton Campus	999990902
	Rustenburg	Rustenburg Campus	999995915
Northern Cape	Kathu	Kathu Campus	299995210
	Kimberley	Northern Cape Campus	299995215
Western Cape	Cape Town	Pinelands Campus	199995164

ANNEXURED D

SYLLABI FOR PLANT ENGINEERING

THE THEORETICAL SECTION OF THE SUBJECT PLANT ENGINEERING

- a) Questions will be framed on all aspects of the theory and the practical application of such theory in its widest sense as would be expected of a certificate engineer while performing his normal duties.
- b) Emphasis will be placed on competency in the exercise, control and supervision over the safe installation, maintenance and operation of machinery.

1 SAFETY AND MANAGEMENT

- a) Accident prevention
- b) Fire protection
- c) Risk control
- d) Project management
- e) Financial management
- f) Loss control

2 ELECTRICAL TECHNOLOGY

- a) Direct - current machines
- b) Direct - current generators
- c) Direct - current motors
- d) Efficiency of D C. machines
- e) Alternating voltage and current
- f) Single and three phase circuits
- g) Transformers
- h) Alternator windings
- i) Production of a rotating magnetic field
- j) Characteristics of synchronous
- k) Generators and motors
- l) Three phase induction motors
- m) Semi conductor devices
- n) Electric lamps and illumination
- o) Electric power transmission & distribution
- p) Circuit breakers
- q) Underground cables
- r) Insulators
- s) Overhead lines

- t) Economics of power supply
- u) Maximum demand
- v) Circuit breakers
- w) Power factor correction
- x) High frequency transients
- y) Methods of earthing
- z) Protection
- aa) Storage of energy
- bb) Rectification
- cc) Fault discrimination (basics)
- dd) (Symmetrical faults only)
- ee) Illumination
- ff) Communication
- gg) Explosion proof equipment
- hh) Lightning protection
- ii) Basics of data transmission

3 APPLIED THERMODYNAMICS

- a) Air and gas compressors and blowers
- b) Air motor (applications)
- c) Compressed air columns
- d) Compressed air receivers
- e) Refrigeration and properties of refrigerants
- f) Air conditioning
- g) Psychometric tables and charts
- h) Steam generators (boilers & ancillary equipment)
- i) Properties of steam
- j) Heat balancing
- k) Condensers
- l) Steam and gas turbines
- m) Fans
- n) Internal combustion engines
- o) Heat transfer
- p) Fuels and combustion

4 STRUCTURES AND STRENGTH OF MATERIALS

- a) Simple stresses
- b) Simple stress and strain
- c) Thin-walled pressure vessels
- d) Torsion of circular shafts

- e) Close coiled helical springs
- f) Shear force and bending moments
- g) Temperature stresses
- h) Strain energy due to direct
- i) Stresses
- j) Second moment of area
- k) Bending stresses
- l) Shear Stress in beams
- m) Struts & buckling
- n) Catenaries
- o) Foundations
- p) Fatigue failure
- q) Mechanical and chemical properties of metals
- r) Testing of materials
- s) Twisting of shafts
- t) Ropes
- u) Properties of different
- v) Types of ropes
- w) Reinforced concrete
- x) Retaining walls
- y) Fastenings

5 THEORY OF MACHINES

- a) Conveyors
- b) Winding plant (Double drum, Single drum, Koepe, Blair Multi-rope and multi-drum) (Degree of protection)
- c) Elevators
- d) Traction
- e) Motion and inertia
- f) Displacement, velocity and acceleration
- g) Static and dynamic balancing
- h) Belt and chain drives
- i) Brakes and dynamometers
- j) Toothed gearing
- k) Gear Trains

ANNEXURE E

SYLLABI FOR LEGAL KNOWLEDGE

1 Mine Health and Safety Act (Act No. 29 of 1996), as amended

Chapter 1 - Objectives of the Act

Section 1

Chapter 2 - Health and Safety at mines

Section 2 to 12

Section 17 to 24

Chapter 3 - Health and Safety representatives

Section 25 to 30

Section 34 to 39

Chapter 4 - Tripartite Institutions

Section 41 to 46

Chapter 5 - Inspectorate of Mine health and Safety

Section 47 to 74

Chapter 6 - Ministers Powers

Section 75 to 80

Chapter 7 - Legal proceedings

Section 83 to 95

Chapter 8 - General provisions

Section 98 and 102 and 103

2 The following Mine Health and Safety Act Regulations, as amended

Chapter 3 All Regulations

Chapter 4 4.5(1) and 4.5(2)

Chapter 5 All Regulations

Chapter 6 All Regulations

Chapter 7 All Regulations

Chapter 8 All Regulations

Chapter 9 All Regulations

Chapter 10 All Regulations

Chapter 13 All Regulations

Chapter 14 All Regulations

Chapter 16 All regulations

Chapter 20 All Definitions

Chapter 21 SAMRASS FORMS: SAMRASS 1 - 9

Chapter 22 Regulation 22.10 to 22.15

Chapter 23 All regulations

3 Minerals Act Regulations in force in terms of Schedule 4 of the MHSA, as amended

Chapter 1	All Definitions
Chapter 2	2.9.2, 2.10.2, 2.13.1 to 2.13.9, 2.13.12, 2.17.1 to 2.19.7
Chapter 3	3.6, 3.14, 3.17
Chapter 4	All Regulations
Chapter 5	5.8.1 to 5.8.3, 5.9.1 to 5.9.2, 5.11, 5.13.1 to 5.13.4, 5.14 to 5.14.4 and 5.15
Chapter 6	6.4, 6.3.2.2, 6.5.1 to 6.8
Chapter 7	7.3.1 to 7.3.4, 7.5.1 to 7.5.3, 7.7,1 to 7.9.2
Chapter 10	10.11.1, 10.25.1 to 10.25.14
Chapter 11	11.11
Chapter 15	15.1 and 15.3.2
Chapter 16	All Regulations
Chapter 17	All Regulations
Chapter 18	All Regulations
Chapter 20	All Regulations
Chapter 22	All Regulations
Chapter 23	All Regulations
Chapter 24	All Regulations
Chapter 26	All Regulations
Chapter 27	All Regulations
Chapter 28	28.1.1 to 28.6, 28.9, 28.12, 28.22.1 to 28.31, 28.47.1 to 28.47.7, 28.48.1 to 28.48.2
Chapter 29	All Regulations
Chapter 31	All Regulations
Chapter 34	Form 6 to Form 10

4. The practical application of the Act and Regulations

5. Machinery guideline for a Code of Practice issued in terms of Section 9(3) of the Mine Health and Safety Act

SANS 1717 -2	2007	Ed 1.1	Electric Initiation System-Shot Exploder based
SANS 10325 -1	2007	Ed 1.1	The safe application of detonator systems for use in mining and civil blasting applications Part 1: Electronic Detonator Systems
SANS 10325 -1	2007	Ed 1.1	The safe application of detonator systems for use in mining and civil blasting applications Part 2: Electric Detonator Systems - Shot Exploder based

SANS 1515 -1	2006	Ed 2.1	Gas measuring equipment primarily for use in mines Part 1: Battery operated portable, flammable gas measuring instrument & warning devices
GUIDE			Guideline for the Compilation of a Mandatory Code of Practice for an Occupational Health Programme on Personal Exposure to Airborne Pollutants Reference No. DME 16/3/2/4-A1
GUIDE			Guideline for the Compilation of a Mandatory Code of Practice for an Occupational Health Stress Reference No. DME 16/3/2/4-A2
SANS 10085 -1	2004	Ed 1.1	The design, erection, use and inspection of access scaffolding
SANS 10147	2002	Ed 4	Refrigerating systems including plants associated with air-conditioning systems
SANS 10266	10266	Ed 2	The safe use, operation and inspection of man-riding belt conveyors in mines
SABS 10338	1999	Ed 1	Homologation of Respiratory Equipment
SANS 1287 -1	2007	Ed 1.1	Ventilation brattices and ducting Part 1: Flexible ducting
SANS 1287 -2	2007	Ed 1.1	Ventilation brattices and ducting Part 2: Brattices, unsupported
SANS 865 -2	2005	Ed 1	Compression-ignition engine systems and machines powered by such engine systems, for use in mines and plants with explosive gas atmospheres or explosive dust atmospheres or both
SANS 1654	2004	Ed 1.1	DC powered machines for use in hazardous areas in mines

SANS 10012	2004	Ed 4	The use of light metals in hazardous locations at mines
SANS 10086 -1	2003	Ed 3.3	The installation, inspection and maintenance of equipment used in explosive atmospheres Part 1: Installations including surface installations on mines
SANS 10086 -2	2006	Ed 1	The installation, inspection and maintenance of equipment used in explosive atmospheres Part 2: Electrical equipment installed underground in mines
SANS 10086 -3	2001	Ed 1.1	The installation, inspection and maintenance of equipment used in explosive atmospheres Part 3: Repair and overhaul of apparatus used in explosive atmospheres
SANS 10108	2005	Ed 5	The classification of hazardous locations and the selection of apparatus for use in such locations
ARP 0108	2005		Regulatory requirements for explosion protected apparatus
SABS 1737	2008	Ed 1.3	Body-worn escape type breathing apparatus
SANS 50145	1997	Ed 1	EN 145:1997 Respiratory protective devices - Self-contained closed-circuit breathing apparatus - Compressed oxygen or compressed oxygen- nitrogen type - Requirements, testing, marking
OTHER			A guide to the selection and classification of rescue brigadesmen on the basis of heat tolerance Chamber of Mines of South Africa Research Organization Research Report No 29/87
OTHER			Work Load Test Chamber of Mines of South Africa S & TS Circular No. 39/93 dated 5 April 1993

GUIDE			Guideline for the Compilation of a Code of Practice on Emergency Preparedness & Response Reference 16/3/2/1-A5
CODE 293			Code of Practice for the Condition Assessment of Steel Wire Ropes on Mine Winders
CODE 294			Code of Practice for Performance, Operation, Testing and Maintenance of Drum Winders relating to Rope Safety
SANS 1515 -1	2006	Ed 2.1	Gas measuring equipment primarily for use in mines Part 1: Battery operated portable, flammable gas
SABS 10083	2004	Ed 5	The measurement and assessment of occupational noise for hearing conservation purposes
SABS 1484	2007	Ed 2	Permitted Explosives
SABS 293	1996	Ed 1	Condition Assessment of Steel Wire Ropes on Mine Winders
SABS 294	2000	Ed 1	Performance, Operation, Testing and Maintenance of Drum Winders relating to Rope Safety