

REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION

POST VOCATIONAL EDUCATION: F. E. T. INSTITUTIONS

SYLLABUS

FOR

INSTALLATION RULES

NATIONAL EXAMINATION & ASSESSMENT

CODE NUMBER

11040432

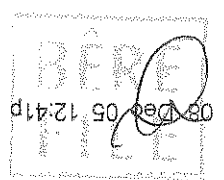
EXAMINATION INSTRUCTION NO. XX OF 2008

Date of implementation

First examinations

January 2009

March 2009



## 1. AIMS

### 1.1. GENERAL AIMS

1.1.1. The general aim is to teach the theoretical knowledge contained in SA standards and codes of practice, SANS 10142 Part I of 2008 and the OHS Act 85 of 93 (latest publication), which are pertinent, and to ensure that it can be applied realistically in practice.

1.1.2. The fundamental principles underlying these codes of practice are primarily intended to ensure the safety of persons, livestock and property against hazards that may arise during the normal operation and the proper functioning of an installation.

### 1.2. SPECIFIC AIMS

Any person attempting the examination must be able to apply the Regulations set out; to design, construct, inspect, verify and to test electrical installations accordingly, and thereby ensure a safe and healthy environment.

## 2. DURATION OF COURSE

One trimester for each examination (part time)

It is recommended that the entire syllabus be lectured over a period of 6 months (two trimesters) due to the extent of the new syllabus.

## 3. EXAMINATION

3.1 Two three-hour national examination papers will be set comprising 100 marks each for each trimester.

No admission requirements are necessary. (Non Formal Course)

3.2 The pass mark for Paper 1 and Paper 2 is 50%.

Both examination papers may be written during the same trimester period. However, candidates need not to pass both examinations during the same trimester, but the second examination must be passed within 12 months of the first, otherwise both examinations must be re-written. However, if a candidate obtains 75% of 100 marks in any one of the examinations, he will be permanently exempted from re-writing that examination. A minimum pass of 50 % for each examination paper must be obtained for in the instructional offering Installation Rules. An appropriate statement of results will be issued by the Department of Education ..

For accreditation purposes all candidates must also have proof of competence with regards to the required unit standards prescribed by the Department of Labour.

3.3 No condonation will be considered.

3.4 Taxonomies such as knowledge, understanding and application are important aspects of these examinations and the proportion of these in the question papers should be as follows:

Knowledge	-	20%
Understanding	-	30%
Application	-	50%

3.5 Tables for the applicable codes will be provided.

4. THE SYLLABUS FOR PAPER 1 AND PAPER 2 WILL CONSIST OF THE FOLLOWING:

4.1. Specific Content

**Installation Rules - First Paper**

4.1.1. Occupational Health and Safety Act 85 of 1993 - Electrical Installation Regulation (including latest amendments),  
Regulations 1 to 14

Deleted: Sections 8,9,13,14,15,16,22,23,27,28,29,30,31,34,35,37,38, & 39.

4.1.2 Occupational Health and Safety Act 85 of 1993 - Electrical Machinery Regulations

Regulation 1, 3, 5, 6 & 11

Deleted: Sections 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20 & 21

4.1.3 Occupational Health and Safety Act 85 of 1993 - Construction Regulations,  
Regulations 22

Deleted: 22

4.1.4 SANS 10142-1: 2008

Section 1 - Scope

Section 2 - Normative references

Section 3 - Definitions (application questions only)

Section 4 - Compliance - for noting

Section 5 - Fundamental requirements

Section 6 - Special installations and locations - Regulation 7.1,7.2,7.3,7.4,7.5,7.6,7.7,7.8,7.9,7.10,7.11,7.12,7.13,7.14, & 7.15

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Annexures - D - (informative)

Example of assessing estimated and connected load.

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Annex F - (informative)

Recommended bending of cables

Annex G - Conduit size for single core cables. (calculations)

Annex J - (informative) Table J1

Explanation of IP ratings

Annex M - (informative)

Electricity supply systems (identification of circuits only figures 2.1 to 2.5)

Annex P - (informative)

Authority for issuing a Certificate of Compliance

Annex Q - (informative)

IEC symbols associated with switchgear

Annex S - (New)

Figures S1 to S4 only to be identified. Application question.

SANS 10198-2:2004 - Selection and Handling of Cables.

1. Scope

2. Normative references for noting

3. Definitions see SANS 10198/1

4. Selection of Cable (4.1, 4.2, 4.3 & 4.4) (4.4 is for noting only) (4.5, 4.6)

5. Method of Installation (5.1, 5.2, 5.3, 5.4 & 5.5)

6. General - (6.1, 6.2, 6.3, 6.4 - noting only) - future implementation

Annex A - for noting only - future implementation

SABS 0292 - Earthing of low-voltage (LV) distribution systems.

1. SCOPE

2. For normative noting - future implementation

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- 3. Definitions for noting - future implementation
- 4. LV earthing (4.1,4.2)
- 5. Types of earthing
  - 5.1 For noting
  - 5.2 Overview of Types of LV System Earthing – To identify only.
  - 5.3 to 5.5 Circuit identification only.
- 6. Characteristics of recommended systems
- 7. Earthing Requirements
  - 7.2.1 For noting
  - 7.2 Fig 6 & 7 – to be identified only.
- 8. Earth Connections
- 9. Interconnections and extensions  
Figure 8 to 11 – identification of circuits only.
- 10. For noting
- ANNEX A for noting - future implementation

- 8.3.4
- 9. Interconnections and extensions  
Figures 9.2.2 to 9.2.5 – identification of circuits only

TOTAL MARKS: 100

Deleted: . 10. For noting  
Annex A for noting

**Installation Rules — Second Paper**

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4.2. SANS 10142-1 2008

Section 6 - Installation requirements

Section 8 - Verification and certification

(including Sections 8.8.1; 8.8.2; 8.8.3 Certificates) Annex B - (informative)

Limits of "arm's" reach

Annex C - (informative)

Installation components

Annex E - (informative)

Calculation of voltage drop – AC and DC

Annex K - (informative)

Notification of potential danger

Annex L - (informative) For noting - future implementation

Installations surge protection devices (SPDs) into low-voltage systems

Figures L.1.1 to L1.3 -- identifying of circuits and legends

Figures L2 for noting only. For future implementation

Annex N - (informative)

Earthing arrangements and equipotential bonding of information technology installation for functional purposes

Annex O - (informative)

Classification of safety services necessary for medical locations – Table O2 only

SANS 62305-3 of 2007 – Protection against lightning part 3 Physical damage to structures and life hazards.

All figures for noting - future implementation

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1973-3 2008 Safety of assemblies with a rated prospective short circuit current of up to and including 10 kA

1. Scope

2. Normative references for noting

3. Definitions

4. Requirements

5. Routine test

Annex A – for noting - future implementation

Annex B – for noting - future implementation

Annex C – for noting - future implementation

Annex D – for noting - future implementation

Annex E - for noting - future implementation

SANS 10142-2 - (Future implementation)

TOTAL MARKS: 100

NOTE: CHANGES TO ANY OF THE CODES, STANDARDS OR REGULATIONS WILL ONLY BE IMPLEMENTED AFTER AN EXAMINATION INSTRUCTION IS ISSUED BY THE DEPARTMENT OF EDUCATION TO ALL EXAMINATION CENTRES.

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This syllabi must be read in conjunction with the accreditation requirements of wireman's licence of the Department of Labour.

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