



## education

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**Department: Education**  
REPUBLIC  
OF SOUTH AFRICA

CHIEF DIRECTORATE: NATIONAL EXAMINATIONS, ASSESSMENT AND MEASUREMENT

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TO: FET COLLEGES ADVISORY COMMITTEE (ADCOM)  
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DEPARTMENT OF LABOUR  
PRINCIPALS OF FET PUBLIC AND PRIVATE COLLEGES INDLELA  
EXAMINATION CENTRE MANAGERS EXAMINERS AND  
MODERATORS  
SOUTH AFRICAN COLLEGE PRINCIPALS ORGANISATION (SACPO)

EXAMINATION INSTRUCTION NO. 08 OF 2009

REVISED SYLLABUS FOR INSTALLATION RULES AND SPECIALISED ELECTRICAL INSTALLATION  
CODES

Please find attached the revised syllabus for Installation Rules and Specialised Electrical Installation codes. The  
first examination will be written in August 2009.

CHIEF DIRECTOR: NATIONAL EXAMINATIONS, ASSESSMENT AND MEASUREMENT  
DATE:

CC HEADS OF PROVINCIAL DEPARTMENTS  
DIRECTOR GENERAL  
DEPUTY DIRECTOR GENERAL

**REPUBLIC OF SOUTH AFRICA**

**DEPARTMENT OF EDUCATION**

**POST VOCATIONAL EDUCATION: FET COLLEGES**

**SYLLABUS FOR**

**INSTALLATION RULES**

**NATIONAL EXAMINATIONS, ASSESSMENT AND MEASUREMENT**

**PROGRAMME NUMBER 51108848**

**EXAMINATION INSTRUCTION NO. X OF 2017**

**Date of implementation**

**March 2018**

**First examinations**

**January 2018**

## **1. AIMS**

### **1.1. GENERAL AIMS**

1.1.1. The general aim is to teach the theoretical knowledge contained in applicable SABS standards and codes, and the Occupational Health and Safety, Act 85 of 1993 (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 THE 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.

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 or she will be permanently exempted from re-writing that examination. A minimum pass of 50% for each examination paper must be obtained 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 regard to the required unit standards prescribed by the Department of Labour. The information brochure for registration is available on the Department of Labour's website:

<http://www.labour.gov.za/documents/useful-documents/occupational-health-and-safety/information-brochure-for-application-of-accredited-person-for-electrical-installation>

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 CONTENTS PAPER 1 (CODE: 11040412)**

4.1.1 Occupational Health and Safety Act, Act 85 of 1993 **Section 1, 8, 9, 10 and 22**

4.1.2 Occupational Health and Safety Act, Act 85 of 1993 - **Electrical Installation Regulations Regulations 1 to 14**

4.1.3 Occupational Health and Safety Act, Act 85 of 1993 - **Electrical Machinery Regulations Regulation 1, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 18**

4.1.4 Occupational Health and Safety Act, Act 85 of 1993 - **Construction Regulations Regulations 24**

##### **4.1.5 SANS 10142-1**

The wiring of premises Part 1: Low voltage installations

Section 1 - Scope

Section 2 - Normative references

Section 3 - Definitions

Section 4 - Compliance

Section 5 - Fundamental requirements Section

7 - Special installations or locations

Annexure C - Example of assessing estimated and connected load.

Annexure E - Recommended bending of cables

Annexure F - Examples of determining the conduit size required for single-core cables of different sizes.

Annexure G - Explanation of IP ratings

Annexure J - Electricity supply systems

Annexure M - Authority for issuing a Certificate of Compliance

Annexure N - IEC symbols associated with switchgear

#### 4.1.6 **SANS 10198-1**

The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 1: Definitions and statutory requirements

#### 4.1.7 **SANS 10198-2**

The selection, handling and installation of electric power cables of rating not exceeding 33 kV Part 2: Selection of cable type and methods of installation

NOTE: No calculations will be asked on this standard

#### 4.1.8 **SANS 10292**

Earthing of low-voltage (LV) distribution systems

TOTAL MARKS: 100

## **4.2 SPECIFIC CONTENTS PAPER 2 (CODE: 11040432)**

### 4.2.1 SANS 10142-1

The wiring of premises Part 1: Low voltage installations

Section 6 - Installation requirements

Section 8 - Verification and certification Annexure

A - Limits of "arm's reach" Annexure B -

Installation components Annexure D - Calculation

of voltage drop Annexure H - Notification of a

potential danger

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

Annexure K - Earthing arrangements and equipotential bonding of information technology installations for functional purposes

Annexure L - Classification of safety services necessary for medical locations

#### 4.2.2 **SANS 1973-3**

Low-voltage switchgear and controlgear assemblies Part 3: Safety of assemblies with a rated prospective short-circuit current of up to and including 10 kA

TOTAL MARKS: 100

**REPUBLIC OF SOUTH AFRICA**

**DEPARTMENT OF EDUCATION**

**POST VOCATIONAL EDUCATION: FET COLLEGES**

**SYLLABUS FOR**

**SPECIALISED ELECTRICAL INSTALLATION CODES**

**NATIONAL EXAMINATIONS, ASSESSMENT AND MEASUREMENT**

**PROGRAMME NUMBER 51108849**

**EXAMINATION INSTRUCTION NO. **x** OF 2017**

**Date of implementation  
examinations March 2018**

**First  
January 2018**

# **1 AIMS**

## **1.1 GENERAL AIMS**

1.1.1 The general aim is to understand the theoretical knowledge contained in the South African Bureau of Standard's code's of practice for Specialised Electrical Installations 1 and the OHS Act 85 of 93 (latest publication) so that these theoretical principles can be realistically applied 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 electrical 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 test electrical installations accordingly and thereby ensure a safe and healthy environment.

# **2 DURATION OF THE COURSE**

One trimester for each examination (part time).

# **3 EXAMINATION**

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

No admission requirements are necessary.

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 or she will be permanently exempted from re-writing that examination. A minimum pass of 50% for each examination paper must be obtained in the instructional offering Specialized Electrical Installation Codes. 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 regard to the required unit standards prescribed by the Department of Labour. The information brochure for registration is available on the Department of Labour's website:

[http://www.labour.gov.za/documents/useful\\_documents/occupational-health-and-safety/information-brochure-for-application-of-accredited-person-for-electrical-installation](http://www.labour.gov.za/documents/useful_documents/occupational-health-and-safety/information-brochure-for-application-of-accredited-person-for-electrical-installation)

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%

During the examinations, 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 CONTENTS PAPER 1 (CODE: 8080654)**

4.1.1 Occupational Health and Safety Act, Act 85 of 1993 **Section 1, 8, 9, 10 and 22**

4.1.2 Occupational Health and Safety Act, Act 85 of 1993 - **Electrical Installation Regulations**

4.1.3 Occupational Health and Safety Act, Act 85 of 1993 - **Electrical Machinery Regulations**

##### **4.1.4 SANS 10142-1**

The wiring of premises Part 1: Low-voltage installations (Scope and with the emphasis on medical locations and Annex K)

##### **4.1.5 SANS 10108**

The classification of hazardous locations and the selection of apparatus for use in such locations.

##### **4.1.6 SANS 60079-0**

Electrical apparatus for explosive gas atmospheres Part 0: General requirements

##### **4.1.7 IEC/SANS 60079-10 -1**

Part 10-1: Classification of areas — Explosive gas atmospheres

##### **4.1.8 IEC/SANS 60079-10-2**

Part 10-2: Classification of areas — Combustible dust atmospheres

Note: No calculations will be asked on this standard

#### 4.1.10 **SANS 10123**

The control of undesirable static electricity.

Note: No calculations will be asked on this standard

TOTAL MARKS: 100

### 4.2 **SPECIFIC CONTENTS PAPER 2 (CODE: 8080644)**

4.2.1 Occupational Health and Safety Act, Act 85 of 1993 **Section 1, 8, 9, 10 and 22**

4.2.2 Occupational Health and Safety Act, Act 85 of 1993 - **Electrical Installation Regulations**

4.2.3 Occupational Health and Safety Act, Act 85 of 1993 - **Electrical Machinery Regulations**

#### 4.2.4 **SANS 10142-1**

The wiring of premises Part 1: Low-voltage installations (Emphasis on Certificate of Compliances and additional test report)

#### 4.2.5 **SANS 60079-14**

Part 14: Electrical installations design, selection and erection.

#### 4.2.6 **SANS 60079-17**

Part 17: Electrical installations inspection and maintenance.

#### 4.2.7 **SANS 10086-2**

The installation, inspection and maintenance of equipment used in explosive atmospheres Part 2: Electrical apparatus installed underground in mines

#### 4.2.8 **IEC/SANS 60079-19**

Part 19: Equipment repair, overhaul and reclamation.

#### 4.2.9 **SANS 10089-2**

The petroleum industry – Part 2: Electrical and other installations in the distribution and marketing sector

#### 4.2.10 **SANS 60079-25**

Part 25: Intrinsically safe electrical systems

TOTAL MARKS: 100