



NATIONAL CERTIFICATE (VOCATIONAL)

SUBJECT GUIDELINES

CONSTRUCTION MATERIALS **NQF Level 4**

September 2007

CONSTRUCTION MATERIALS – LEVEL 4

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INTRODUCTION

A. What is Construction Materials?

Construction Materials provides training to students in construction materials, construction activities and construction processes. It equips students to become part of the mainstream construction industry.

B. Why is Construction Materials important in the Building and Civil Construction programme?

Construction Materials provides students with practical means to understand and become part of the mainstream construction industry.

C. The link between the Learning Outcomes for Construction Materials and the Critical and Developmental Outcomes

Students will be able to identify different types of construction materials to perform various construction activities. They will work effectively with the other team members to complete activities such as identifying and describing different construction material characteristics. Construction Materials also prepares students to communicate understanding of the different uses of appropriate construction materials in required circumstances.

D. Factors that contribute to achieving the Construction Material Learning Outcomes

- Thorough preparation for teaching and learning activities
- An environment conducive to teaching and learning through effective student support, motivation, commitment and a positive attitude
- An interest in Construction Materials

1 DURATION AND TUITION TIME

This is a one-year instructional programme comprising of 200 teaching and learning hours. The subject may be offered on a part-time basis provided all of the assessment requirements set hereunder are adhered to.

Students with special education needs (LSEN) must be catered for in a way that eliminates barriers to learning.

2 SUBJECT LEVEL FOCUS

- Describe the characteristics and functions of various construction materials.
- Interpret and apply relevant health and safety standards.

3 ASSESSMENT REQUIREMENTS

3.1 Internal assessment (50 percent)

Internal assessment refers to continuous assessment, which is college-based assessment. The achievement of Learning Outcomes contributes towards the achievement of the qualification.

3.1.1 Theoretical Component

The theoretical component will form 40 percent of internal assessment, based on the fact that the subject requires a broad base of theoretical knowledge. Evidence of theoretical assessment must be reflected in the Portfolio of Evidence (PoE).

3.1.2 Practical Component

The practical component will form 60 percent of internal assessment. All students must have a PoE for the purpose of assessment

- **Some examples of practical assessments include, but are not limited to:**
 - Presentations (lectures, demonstrations, group discussions and activities, practical work, observation, role play, self activity, judging and evaluation)
 - Use of aids
 - Exhibitions
 - Visits
 - Guest speaker presentations
 - Research
 - Structured environment

- **Definition of the term “Structured environment”**

“Structured environment” for the purposes of assessment refers to an actual or simulated workplace, or workshop environment.

Evidence of the practical component must be provided in the form of a logbook with a clear listing of the competencies to be assessed. The following information must be contained in the logbook:

- Date
- Task
- Summary of Task
- Supervisor's signature
- Student's signature
- Date of completion of task

For the logbook to be regarded as valid evidence it must be reflected in the student's PoE. An officially assigned supervisor must sign this off.

- **Evidence in practical assessments**

All evidence pertaining to evaluation of practical work must be reflected in the student's PoE. The assessment instruments used for the purpose of conducting such assessments must be part of the evidence contained in the PoE.

3.1.3 Processing of internal assessment mark for the year

A year mark out of 100 is calculated by adding the marks of the theoretical component and the practical component of the internal continuous assessment.

3.1.4 Moderation of internal assessment mark

Internal assessment is subject to internal and external moderation procedures as set out in the *National Examinations Policy for Further Education and Training College Programmes*.

3.2 External assessment (50 percent)

A national examination is conducted annually in October or November by means of a paper set internally and marked and moderated internally.

External assessment details are set out in the *Assessment Guidelines: Construction Materials* (Level 4).

4 WEIGHTED VALUES OF TOPIC

TOPICS	WEIGHTED VALUE
1. Precast concrete	20%
2. Prestressed concrete	10%
3. Curing of concrete	10%
4 Other related materials	30%
5. Strengthening of materials	30%
TOTAL	100

5 CALCULATION OF FINAL MARK

Continuous assessment: Student's mark/100 x 50/1 = a mark out of 50 (a)

Examination mark: Student's mark/100 x 50/1 = a mark out of 50 (b)

Final mark: (a) + (b) = a mark out of 100

All marks are systematically processed and accurately recorded to be available as hard copy evidence for, amongst others, purposes of moderation and verification.

6 PASS REQUIREMENTS

The student must obtain at least fifty (50) percent in ICASS and fifty percent (50) in the examination.

7 SUBJECT AND LEARNING OUTCOMES

On completion of Construction Material Level 3 the student should have covered the following topics:

Topic 1:	Precast concrete
Topic 2:	Prestressed concrete
Topic 3:	Curing of concrete
Topic 4:	Other related materials
Topic 5:	Strengthening of materials

7.1 Topic 1: Precast concrete

7.1.1 Subject Outcome: Explain and use precast concrete

Learning Outcomes

- Explain the use of precast concrete in construction.
- Demonstrate the use of precast concrete in construction.
Range: Refractory bricklaying.
- Apply safety requirements during tests and use of precast concrete.

7.2 Topic 2: Prestressed concrete

7.2.1 Subject Outcome: Explain and use prestressed concrete.

Learning Outcomes:

- Explain the use of prestressed concrete in construction.
- Demonstrate the use of prestressed concrete in construction.
Range: Concrete lintels, beams in concrete ceilings.
- Apply safety requirements during tests and use of prestressed concrete.

7.3 Topic 3: Curing of concrete

7.3.1 Subject Outcome: Explain reasons for curing concrete and demonstrate procedures used for curing.

Learning Outcome:

- Explain reasons for concrete curing.
- Demonstrate practically the curing of concrete within prescribed timeframes.

7.4 Topic 4: Other related materials

7.4.1 Subject Outcome 1: Explain hot mix asphalt and its usage in construction.

Learning Outcomes:

- Explain what hot mix asphalt products are referring to the ingredients and their purposes in the formulation of hot mix asphalt products.
- Describe the uses of hot mix asphalt products.
- Explain safety procedures and practices for the use of hot mix asphalt.

7.4.2 Subject Outcome 2: Explain bitumen emulsion products and their usage in construction.

Learning Outcomes:

- Explain what bitumen emulsion products are referring to the ingredients and their purposes in the formulation of bitumen emulsion products.
- Describe the uses of bitumen emulsion products.
Range: even spreading over concrete surface, no openings or holes.
- Explain safety procedures and practices for the use of bitumen emulsion products.

7.4.3 Subject Outcome 3: Use bitumen emulsion products correctly in construction.

Learning Outcome:

- Practically demonstrate the use of bitumen emulsion products applying safety procedures and practices;

7.5 Topic 5: Strengthening of materials

7.5.1 Subject Outcome 1: Observe and explain the strengthening of various materials used in the construction industry.

Learning Outcomes:

- Explain strengthening of a range of materials used in construction.
Range: concrete beams slabs and columns, steel, roofs.
- Observe and describe testing on a range of materials used in construction.
- Explain safety requirements during testing of a range of materials.

8 RESOURCE NEEDS FOR THE TEACHING OF CONSTRUCTION MATERIAL - LEVEL 4

8.1 Physical resources

Classroom, teaching aids and pre-designed models, worktables, chairs, chalkboards.

8.2 Human resources

Minimum educator qualifications in Building and Civil Construction, registered assessor and on-going top-up training and up-skilling requirements.

8.3 Teaching and learning resources

Overhead projector, chalkboard, pre-designed models tools and equipment requirements, teaching and learning materials and resources.

8.4 Other resources

Budget according to Construction Materials requirements.