NATIONAL CERTIFICATE (VOCATIONAL)

SUBJECT GUIDELINES

CONSTRUCTION MATERIALS
NQF Level 3

September 2007
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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 Construction Materials Learning Outcomes 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 (20 credits). 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 any barriers to learning activities.

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. All internal assessments must be finalised by an assessor who has been declared competent by an accredited provider.

3.1.1 Theoretical Component

The theoretical component will form 80 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 20 percent of internal assessment. All students must have a PoE for the purpose of assessment.

It is compulsory that the student at this subject level spend a minimum of 40 hours in a well-structured environment to have the opportunity to apply the knowledge, skills and values acquired.

- 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 tools and instruments constructed and used for the purpose of conducting such assessments must be clear from 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 3)*.

4 **WEIGHTED VALUES OF TOPIC**

<table>
<thead>
<tr>
<th>TOPICS</th>
<th>WEIGHTED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Apply finishing materials to concrete ceilings</td>
<td>10%</td>
</tr>
<tr>
<td>2. Fixing reinforcing steel</td>
<td>25%</td>
</tr>
<tr>
<td>3. Reinforced concrete</td>
<td>25%</td>
</tr>
<tr>
<td>4. Concrete pipes</td>
<td>10%</td>
</tr>
<tr>
<td>5. Application of SABS specifications</td>
<td>30%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

5 **CALCULATION OF FINAL MARK**

Continuous assessment: \( \text{Student’s mark/100 x 50/1} = \text{a mark out of 50} \) (a)

Examination mark: \( \text{Student’s mark/100 x 50/1} = \text{a mark out of 50} \) (b)

Final mark: \( (a) + (b) = \text{a mark out of 100} \)

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**

A student must obtain at least fifty (50) percent in ICASS and fifty (50) percent 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:  Apply finishing materials to concrete ceilings
Topic 2:  Fixing reinforcing steel
Topic 3:  Reinforced concrete
Topic 4:  Concrete pipes:
Topic 5:  Application of SABS specifications

7.1  Topic 1: Apply finishing materials to concrete ceilings

7.1.1 Subject Outcome: Explain how to apply material to concrete ceiling

Learning Outcome
• Explain the application of material to a concrete ceiling
• Adhere to health and safety practices

7.2  Topic 2: Fixing reinforcing steel

7.2.1 Subject Outcome: Explain rules and processes of fixing reinforcing steel

Learning Outcome:
• describe different types of reinforcing steel
• Explain fixing of steel reinforcement

7.3  Topic 3: Reinforced concrete

7.3.1 Subject Outcome: Explain application of reinforcement in concrete

Learning Outcome
• Explain what reinforced concrete is and why it is used
• Explain various concrete structures where reinforcement is used
• Demonstrate knowledge of applying and using reinforced concrete
• Adhere to health and safety practices

7.4  Topic 4: Concrete pipes:

7.4.1 Subject Outcome: Explain and use concrete pipes in construction

Learning Outcome
• Demonstrate knowledge and the use of concrete pipes in building construction
• Adhere to health and safety practices during construction

7.5  Topic 5: Application of SABS specifications

7.5.1 Subject Outcome 1: Explain the application of SABS specifications

7.5.2 Subject Outcome 2: Identify and explain SABS specification

Learning Outcome:
• Explain the application of SABS specifications for various construction materials
• Explain the role of the SABS specifications in relation to the following:
  ▪ Quality of materials
  ▪ Quality of the work
  ▪ Contract documents
• Describe and adhere to health and safety practices according to SABS requirements
  Range: Administration, structural design, dimensions, public safety, demolition, work, site operations, excavations, foundations, floors, walls, roofs, stairways, glazing, lightning and ventilation, drainage, non-water-borne means of sanitary disposal, storm water disposal, facilities for disabled persons, fire protection, refuse disposal, space heating, fire installation and certification, sign and specimen form.

8 RESOURCE NEEDS FOR THE TEACHING OF CONSTRUCTION MATERIAL - LEVEL 3

8.1 Physical resources
Classroom, teaching aids and pre-designed models, worktables, chairs, chalkboards and suitably equipped workshops

8.2 Human resources
Minimum educator qualifications in Building and Civil Construction, competent 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 Material requirements - mainly materials stated in different topics.