education

Department:
Education
REPUBLIC OF SOUTH AFRICA

NATIONAL CERTIFICATES (VOCATIONAL)

SUBJECT GUIDELINES

WORKSHOP PRACTICE

NQF LEVEL 2

September 2007

INTRODUCTION

A. What is Workshop Practice and Electrical Workmanship?

Workshop Practice introduces students to technical fields. It will equip students with the necessary hand-skills for the construction industry. Workshop and fieldwork procedures that conform to safety regulations and safe working practices will also be learnt.

Electrical Workmanship introduces this field of learning to students. Students will have been introduced to the subject "Workshop Practice" in the previous NQF level and Electrical Workmanship continues to practically implement the learning material. Although some of the work is repeated, this gives students a solid foundation of knowledge.

B. Why is Workshop Practice and Electrical Workmanship important in the Electrical Infrastructure Construction programme?

Workshop Practice will equip students with the necessary hand-skills, safety consciousness and first aid knowledge and accustom students to technical environments.

Electrical Workmanship contains enough trade specific skills, knowledge, attitudes and values so that students can maintain, repair and construct basic electrical systems in practice.

C. The link between the Workshop Practice and Electrical Workmanship Learning Outcomes and the Critical and Developmental Outcomes

Students will be taught to:

- Identify and solve problems:
  - Recognise principles of electricity and react appropriately.
- Work effectively with others:
  - Solve electricity-related problems.
- Organise and manage their activities and themselves:
  - Apply planned procedures for using, storing and looking after equipment, tools, test equipment, drawings and parts.
- Collect, organise and evaluate information and take appropriate action:
  - Use media centres to collect information.
- Communicate effectively:
  - Use common names for electrical equipment, tools, test equipment, drawings and parts.
- Use science and technology:
  - Use and apply science and technology principles in both theory and practice.
- Demonstrate understanding of subject content through the application of acquired knowledge:
  - Solve problems by using subject contents.

D. Factors that contribute to achieving the Workshop Practice and Electrical Workmanship learning outcomes

- An understanding of technical (electro-mechanical) principles
- An analytical ability
- An ability to do mathematical calculations and manipulations
- Hand skills (practical skills)
- Practical improvisation abilities

WORKSHOP PRACTICE – LEVEL 2

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1 DURATION AND TUITION TIME

This is a one-year instructional programme comprising 200 teaching and learning hours. The subject may be offered on a part-time basis provided the student meets all the assessment requirements.

2 SUBJECT LEVEL FOCUS

The student will be able to:

- Demonstrate understanding of the importance of safety.
- Know the regulations regarding engineering practices.
- Identify accident types and perform basic first aid.
- Select, use and care for safety equipment and hand and power tools.
- Know about and practice good housekeeping.
- Learn soldering and welding techniques.

3 ASSESSMENT REQUIREMENTS

3.1 Internal assessment (50 percent)

All internal assessments must be finalised by an assessor with at least a certificate of competence.

3.1.1 Theoretical component

The theoretical component forms 40 percent of the internal assessment mark.

3.1.2 Practical component

The practical component forms 60 percent of the internal assessment mark.

Practical components include applications and exercises. All practical components must be indicated in a Portfolio of Evidence (PoE).

Note: Mathematical calculations that use students' theoretical background can be considered as part of the practical component.

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 (40 percent) and the practical component (60 percent) of the internal continuous assessment (ICASS).

3.1.4 Moderation of internal assessment mark

Internal assessment is subjected to internal and external moderation procedures as set out in the *National Examinations Policy for FET College Programmes*.

3.2 External assessment (50 percent)

A National Examination is conducted annually in October or November by means of a paper(s) set and moderated externally. A practical component will also be assessed.

External assessment details and procedures are set out in the *Assessment Guidelines: Workshop Practice* (Level 2).

4 WEIGHTED VALUES OF TOPICS

TOPICS	WEIGHTED VALUE
1. Safety and Regulations	20
2. First Aid	20
3. Tools and Equipment Use	20
4. Worksite Procedures, Lifting Techniques and Trainee Regulations	20
5. Soldering and Gas Welding	20
TOTAL	**100**

5 CALCULATION OF FINAL MARK

Internal assessment mark:	Student's mark/100 x 50 = a mark out of 50 (a)
Examination mark:	Student's mark/100 x 50 = 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, reporting, moderation and verification purposes.

6 PASS REQUIREMENTS

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

7 SUBJECT AND LEARNING OUTCOMES

On the completion of Workshop Practice Level 2, the student should have covered the following topics:

Topic 1: Safety and Regulations
Topic 2: First Aid
Topic 3: Tools and Equipment Use
Topic 4: Worksite Procedures, Lifting Techniques and Trainee Regulations
Topic 5: Soldering and Gas Welding

7.1 Topic 1: Safety and Regulations

Subject Outcome 1: Explain and practice safety.

Range: Includes explaining why safety is of paramount importance, identify hazardous conditions and knowing what safety precautions to take when working in elevated positions, working with a grindstone, arc welding, drilling, using an angle grinder and doing maintenance on electrical equipment.

Learning Outcomes:

The student should be able to:

- State safety, health and environmental requirements applicable to a workplace.
- State common hazardous conditions at worksites.
- List safety precautions to be taken for the identified hazardous working conditions.
- Know about site-specific requirements and list them.

Subject Outcome 2: Know about safety regulations.

Range: Includes knowing about the Occupational Health & Safety Act of 1993, the Mine Health and Safety Act 29 of 1996, NOSA, NOSA grading in factories and workshops and the SHE (Safety Health and Environment) program at the worksite.

Learning Outcomes:

The student should be able to:

- State five safety regulations applicable to factories and workshops.
- State five safety regulations applicable in mines.
- Explain NOSA grading for factories and workshops.
- List components in a typical Safety, Health and Environment programme.

7.2 Topic 2: First Aid

Subject Outcome 1: Identify the symptoms and know the treatment to apply basic first aid to an accident victim.

Range: Includes victims with electric shock, shock, burns, bleeding, fractures, applying artificial respiration and cardiac resuscitation.

Learning Outcomes:

The student should be able to:

- Analyse the case study and state the steps to be followed.
- Perform basic first aid procedures in a simulated case study.

Subject Outcome 2: Know the procedures to report an accident.

Learning Outcomes:

The student should be able to:

- List basic procedures to report an accident.
- Follow the basic procedures in a simulated case study.
- Write out an accident report.

7.3 Topic 3: Tools and Equipment Use

Subject Outcome 1: Use tools and equipment according to accepted standards.

Range: Includes identifying, inspecting, selecting, using, maintaining and caring for hand tools, power tools and power tool attachments.

Learning Outcomes:

The student should be able to:

- Name each tool correctly.
- Inspect tools for serviceability and compile a report.
- Identify and select the correct tools for the job.
- Identify and report unsafe or faulty tools and state the nature of the flaw.
- Correctly use tools (hand and workshop) and equipment.
- Select appropriate power tools and power tool attachments for particular applications.
- Use appropriate power tools and power tool attachments for particular applications.
- Identify unsafe or faulty power tools and power tool attachments and take corrective action.
- Clean, service and store tools, power tools and power tool attachments correctly.

7.4 Topic 4: Worksite Procedures, Lifting Techniques and Trainee Regulations

Subject Outcome 1: Have basic knowledge of good worksite procedures.

Range: Includes basic knowledge of safety signs, colour-coding of walkways, work-areas, no-go areas, and fire-fighting equipment.

Range: Includes drawing up a written plan and organize a schedule for the effective and efficient completion of a task.

Learning Outcomes:

The student should be able to:

- List typical worksite procedures.
- Identify signs such as fire-fighting equipment, restricted areas, compulsory wearing of safety equipment, no smoking, high voltage, slippery surfaces, etc.
- Identify coding as applied at sites of work, in factories and in workshops.
- List fire-fighting equipment and their application.
- List tasks that must be done before work on the task is started; explain how each task can be achieved and the reason for each task.

Subject Outcome 2: Understand and use basic lifting techniques

Learning Outcomes:

The student should be able to:

- Recall overhead crane hand signals.
- Demonstrate overhead crane hand signals.
- Use the following equipment: chain block (2 ton max), shackles (2 ton max), chain slings (2,5 ton max) and wire rope slings (20 mm diameter).

Subject Outcome 3: Show a basic knowledge of the mentioned acts, procedures and rules used to protect employers and trainees.

Learning Outcomes:

The student should be able to:

- Recall applicable sections of the Manpower Training Act (Act 56 of 1981), with special reference to discipline and legal responsibilities.

- Recall terms and conditions of apprenticeship as gazetted (26 July 1991).
- Recall applicable grievance procedures.
- Recall applicable disciplinary procedures.
- Recall company rules and procedures.
- Recall quality assurance procedures.

7.5 Topic 5: Soldering and Gas Welding

Subject Outcome 1: Apply soldering techniques.

Range: Includes soldering electronic circuitry and joining electric cables

Range: Includes but is not limited to end-on-end joints, T-joints and cable-onto-terminal joints

Learning Outcomes:

The student should be able to:

- Select soldering equipment that best suits the application.
- Prepare for work activity by listing the components, tools and resources needed.
- Prepare work area and materials for a practical demonstration.
- Solder in accordance with standard practice.
- Inspect joint and clean work area.

Subject Outcome 2: Apply welding and gas cutting techniques

Range: Includes identification of equipment, correct operating procedures and cutting, welding and brazing limited to one parallel run

Students must know relevant safety aspects for welding in an electrical environment.

Learning Outcomes:

The student should be able to:

- Select an activity that best suits the application.
- Prepare for work activity by listing the components, tools and resources needed.
- Prepare work area and materials for a practical demonstration.
- Weld, cut or braze material in accordance with standard practice.
- Inspect joint and dispose of scrap material.
- Restore the work area to a safe and serviceable condition after the activity.