



higher education  
& training

Department:  
Higher Education and Training  
REPUBLIC OF SOUTH AFRICA

# NATIONAL CERTIFICATES (VOCATIONAL)

## SUBJECT GUIDELINES

### DRAWING OFFICE PROCEDURES AND TECHNIQUES

Level 2

IMPLEMENTATION: JANUARY 2011

# **DRAWING OFFICE PROCEDURES AND TECHNIQUES - LEVEL 2**

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## INTRODUCTION

### **A. What is the subject *Drawing Office Procedures and Techniques* about?**

*Drawing Office Procedures and Techniques* focuses on the drawing office orientation, standards and specifications. Drawing office layout and equipment is discussed as well as the administration procedures. Principles of visualization and perception are discussed and explained. SI units of measurement applicable to the drawing environment are defined and finally the students will be introduced to computer-aided applications and orientation.

### **B. Why is *Drawing Office Procedures and Techniques* important in the Drawing Office Practice learning programme?**

The ability to read and interpret drawings and produce drawings serves as a form of communication within the drawing office environment. Drawing Office Procedures and Techniques also enables students to describe and use drawing instruments and equipment correctly.

### **C. The link between *Drawing Office Procedures and Techniques* Learning Outcomes and the Critical and Developmental Outcomes**

Students will be able to identify different types of instruments and equipment used to perform various drawing applications. They will work effectively with the team in activities such as describing the procedures and techniques within the drawing office environment. Students will also learn to visualize objects that will enhance their graphic communication interpretation in a graphic representation aspect.

### **D. Factors that contribute to achieving *Drawing Office Procedures and Techniques* Learning Outcomes**

- A learning environment conducive to teaching and learning through effective student support, motivation, commitment, a positive attitude and emphasis on safety
- Exposure to a drawing office environment that will stimulate a student's interest in the subject
- Qualified and competent lecturers who will encourage the students to develop their knowledge and skills
- Availability of appropriate equipment and consumables.

- **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.

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

## **1 SUBJECT LEVEL FOCUS**

The content at Level 2 will assist to equip students with basic drawing office procedures and techniques as well as the skills to visualise graphics needed to plan and execute drawings in accordance with design specifications and regulations. The emphasis is on “draughtsmanship” rather than practical drawing.

## **2 ASSESSMENT REQUIREMENTS**

### **2.1 Internal assessment (50 percent)**

#### 2.1.1 Theoretical component

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

Internal assessment of the theoretical component in Drawing Office Procedures and Techniques Level 2 takes the form of observation, class questions, group work, and informal group competitions with rewards, individual discussions with students, class, topic and semester tests and an internal examination. Lecturers can observe students when marking exercises from the previous day and asking class questions.

Assignments, case studies and tests can be completed at the end of a topic. Tests and the internal examination must form part of the internal assessment.

#### 2.1.2 Practical component

The practical component forms a maximum of 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).

Internal assessment of the practical component in Drawing Office Procedures and Techniques Level 2 takes the form of assignments, practical exercises, case studies and practical examinations in a simulated business environment.

Students may complete practical exercises daily. Assignments and case studies can be completed at the end of a topic. Practical examinations can form part of internal practical assessment.

- **Some examples of practical assessments may include, but are not limited to:**

- A. Presentations (lectures, demonstrations, group discussions and activities, practical work, observation, role-play, independent activity, synthesis and evaluation)
- B. Exhibitions by students
- C. Visits undertaken by students based on a structured assignment task
- D. Research
- E. Task performance in a “Structured Environment”

• **Definition of the term “Structured Environment”**

For the purposes of assessment, “Structured Environment” refers to a simulated workplace or workshop environment. Activities in the simulated workplace or environment must be documented in a logbook with a clear listing of the competencies to be assessed. The following information must be contained in the logbook:

- Nature of department or environment in which practical component was achieved
- Learning Outcomes
- Activities in the environment with which to achieve the Learning Outcomes
- Time spent on activities
- Signature of facilitator or supervisor and student

For the logbook to be regarded as valid evidence, it must be signed by an officially assigned supervisor.

• **Evidence in practical assessments**

All evidence pertaining to evaluation of practical work must be reflected in the student’s Portfolio of Evidence. Assessment instruments used for the purpose of conducting these assessments must be part of the evidence contained in the PoE.

2.1.3 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 (ICASS)).

2.1.4 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*.

**2.2 External assessment (50 percent)**

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

External assessment details and procedures are set out in the *Assessment Guidelines: Drawing Office Procedures and Techniques Level 2*.

**3 WEIGHTED VALUES OF TOPICS**

TOPICS	WEIGHTED VALUE
1. Drawing office orientation	10%
2. Drawing office standards and specifications	10%
3. Drawing office layout and equipment	10%
4. Principles of visualisation and perception	20%
5. Units of measurement	15%
6. Computer-aided drawing essentials	35%
<b>TOTAL</b>	<b>100</b>

**4 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, and moderation and verification purposes.

## **5 PASS REQUIREMENTS**

A student must obtain at least 50 percent in ICASS and 50 percent in the examination to achieve a pass in this subject.

## **6 SUBJECT AND LEARNING OUTCOMES**

On completion of Drawing Office Procedures and Techniques Level 2, the student should have covered the following topics:

- Topic 1: Drawing office orientation
- Topic 2: Drawing office standards and specifications
- Topic 3: Drawing office layout and equipment
- Topic 4: Principles of visualisation and perception
- Topic 5: Units of measurement
- Topic 6: Computer-aided drawing essentials

### **7.1 Topic 1: Drawing Office Orientation**

#### **Subject Outcome 1.1: Describe draughting as a career**

##### **Learning Outcomes**

The student should be able to:

- Describe important functions of graphic communication.
- Describe the purpose of graphic communication in the world of work.
- Identify and explain the attributes and personal traits important to become a draughtsperson.
- Identify and explain a career pathway within a drawing office.
- Identify and explain the possible career opportunities in draughting.

#### **Subject Outcome 1.2: Explain the history and development of graphic communication**

##### **Learning Outcomes**

The student should be able to:

- Explain the history and development of current trends in graphic communication.
- Describe Monge's contribution to drawing.
- Identify and explain the four levels of graphic communication within the field of draughting.
- Explain types of technical drawings and its uses.

#### **Subject Outcome 1.3: Explain professional bodies in the draughting profession**

##### **Learning Outcomes**

The student should be able to:

- Identify professional bodies related to draughting disciplines.
- Describe mandates of professional bodies within the draughting profession.
- Explain the roles and responsibilities of professional bodies.

### **7.2 Topic 2: Drawing Office Standards and Specifications**

### **Subject Outcome 2.1: Explain drawing equipment and instruments**

#### **Learning Outcomes**

The student should be able to:

- Identify and correctly use drawing instruments and equipment.
- Explain how to take care of drawing instruments and equipment.
- Describe types of drawing paper.

### **Subject Outcome 2.2: Prepare a standard legend**

#### **Learning Outcomes**

The student should be able to:

- Explain and draw a standard legend as commonly used on a working drawing sheet.

### **Subject Outcome 2.3: Explain and use freehand drawing techniques.**

#### **Learning Outcomes**

The student should be able to:

- Identify and correctly use freehand printing of letters and numbers according to the prescribed code of practice in SANS.
- Draw vertical, horizontal, circular, and angular and arc motion using recommended methods of freehand drawing.
- Draw basic elementary freehand drawings on lined and non-lined paper.

## **7.3 Topic 3: Drawing Office Layout and Equipment**

### **Subject Outcome 3.1: Identify and describe drawing office layout and equipment**

#### **Learning Outcomes**

The student should be able to:

- Describe and draw the layout of a typical drawing office.
- Describe the maintenance of draughting equipment and machines according to standard drawing office practice.
- Describe types of drawing materials and their applications.

### **Subject Outcome 3.2: Describe drawing office administration**

#### **Learning Outcomes**

The student should be able to:

- Explain various drawing office administration procedures in a drawing office.
- Describe filing and cataloguing of drawings.
- Draw an organogram to illustrate the structure and functioning of a typical drawing office.
- Create a technical report.

### **Subject Outcome 3.3: Describe reproduction of drawings**

#### **Learning Outcomes**

The student should be able to:

- Describe the reproduction of drawings.

## **7.4 Topic 4: Principles of visualisation and perception**

### **Subject Outcome 4.1: Produce visuals from a written description and a brief**

### **Learning Outcomes**

The student should be able to:

- Create an object from a written description using a freehand drawing.
- Amend a given freehand drawing according to a written description or a brief.

### **Subject Outcome 4.2: Produce drawings from verbal instructions**

#### **Learning Outcomes**

The student should be able to:

- Create a freehand drawing of an object from a verbal instruction.
- Amend a given freehand drawing according to a verbal instruction.

### **Subject Outcome 4.3: Check and revise drawings.**

#### **Learning Outcomes**

The student should be able to:

- List errors on an existing drawing.
- Amend a given freehand drawing according to a verbal instruction.
- List errors on a client's brief that do not conform to good drawing office practice.

## **7.5 Topic 5: Units of measurement**

### **Subject Outcome 5.1: Describe and use SI units of measurement**

#### **Learning Outcomes**

The student should be able to:

- Define basic units of measurement related to draughting.
- Perform conversions according to relevant digital values.

## **7.6 Topic 6: Computer-aided drawing essentials**

### **Subject Outcome 6.1: Introduce CAD software and produce drawings.**

#### **Learning Outcomes**

The student should be able to:

- Identify and describe essential CAD commands.
- Use an appropriate CAD programme to perform drawing operations.
- Draw and position elevations and parameters according to scale to suit a design.
- Draw orthographic projected views according to requirements.
- Insert relevant dimensions required for construction/ manufacturing purposes.
- Ensure constructed drawing conforms to selected views and layout.
- Ensure drawings comply with basic code of practice used in the drawing office.

### **Subject Outcome 6.2: Finalise CAD details and layouts**

#### **Learning Outcomes**

The student should be able to:



- Select the data title block, layout, type of views and reference data to suit the task.
- Identify, produce and position logos and symbols to comply with requirements.
- Add drawing notes and presentation detail where needed according to requirements of basic code of practice used in the drawing office.
- Cross-reference multiple sheet drawing layouts according to specified requirements.
- Save drawings to a file according to specified procedures.

### **Subject Outcome 6.3: Verify CAD details and layouts**

#### **Learning Outcomes**

The student should be able to:

- Print a draft copy and check for compliance.
- Identify necessary amendments and obtain authorisation.
- Amend drawings where necessary to ensure compliance according to authorisation.
- Verify that the drawings meet the assignment/task requirements.
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### **Subject Outcome 6.4: Produce a hard copy of a final drawing**

#### **Learning Outcomes**

The student should be able to:

- Select the paper size, orientation scale and format to ensure compliance with standards.
- Print a final copy that meets the requirements.
- Complete all required administrative and office procedures.

## **8 RESOURCE NEEDS FOR THE TEACHING OF DRAWING OFFICE PROCEDURES AND TECHNIQUES – LEVEL 2**

### **8.1 Physical resources**

Lecture room(s) equipped with:

- A computer room with desk top computers, data projector or flat wall mounted monitors, Ink Jet/Laser printers (A3) and/or plotters (latest technology recommended) and appropriate computer software for Computer-Aided Drawing (CAD)
- Store room or cabinets for consumables
- Teaching aids and pre-designed models
- Work tables and chairs
- Chalkboards
- Overhead projector

### **8.2 Human resources**

The educator for Drawing Office Procedures and Techniques level 2 must be:

- A subject matter expert
- A competent lecturer
- A life-long student

- In possession of an NQF level 5 teaching qualification
- Conversant with OBE methodologies
- A trade test will be an added advantage

It is of paramount importance that educators working in this environment attend seminars and workshops in order to be updated and re-skilled with the latest developments in technology.

### **8.3 Other resources**

Funds for the procurement of consumables

### **8.4 Learning and teaching materials**

Learning materials include approved textbooks and the latest SA national Standards (SANS)