



**education**

Department:  
Education  
REPUBLIC OF SOUTH AFRICA

# **NATIONAL CERTIFICATES (VOCATIONAL)**

## **ASSESSMENT GUIDELINES**

### **INTRODUCTION TO COMPUTERS**

#### **NQF Level 2**

April 2008



# **INTRODUCTION TO COMPUTERS – LEVEL 2**

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## SECTION A: PURPOSE OF THE SUBJECT ASSESSMENT GUIDELINES

This document provides the lecturer with guidelines to develop and implement a coherent, integrated assessment system for Introduction To Computers in the National Certificates (Vocational). It must be read with the *National Policy Regarding Further Education and Training Programmes: Approval of the Documents, Policy for the National Certificates (Vocational) Qualifications at Levels 2 to 4 on the National Qualifications Framework (NQF)*. This assessment guideline will be used for National Qualifications Framework Levels 2-4.

This document explains the requirements for the internal and external subject assessment. The lecturer must use this document with the *Subject Guidelines: Introduction To Computers* to prepare for and deliver Introduction To Computers. Lecturers should use a variety of resources and apply a range of assessment skills in the setting, marking and recording of assessment tasks.

## SECTION B: ASSESSMENT IN THE NATIONAL CERTIFICATES (VOCATIONAL)

### 1 ASSESSMENT IN THE NATIONAL CERTIFICATES (VOCATIONAL)

Assessment in the National Certificates (Vocational) is underpinned by the objectives of the National Qualifications Framework (NQF). These objectives are to:

- Create an integrated national framework for learning achievements.
- Facilitate access to and progression within education, training and career paths.
- Enhance the quality of education and training.
- Redress unfair discrimination and past imbalances and thereby accelerate employment opportunities.
- Contribute to the holistic development of the student by addressing:
  - social adjustment and responsibility;
  - moral accountability and ethical work orientation;
  - economic participation; and
  - nation-building.

The principles that drive these objectives are:

- **Integration**

To adopt a unified approach to education and training that will strengthen the human resources development capacity of the nation.

- **Relevance**

To be dynamic and responsive to national development needs.

- **Credibility**

To demonstrate national and international value and recognition of qualification and acquired competencies and skills.

- **Coherence**

To work within a consistent framework of principles and certification.

- **Flexibility**

To allow for creativity and resourcefulness when achieving Learning Outcomes, to cater for different learning styles and use a range of assessment methods, instruments and techniques.

- **Participation**

To enable stakeholders to participate in setting standards and co-ordinating the achievement of the qualification.

- **Access**

To address barriers to learning at each level to facilitate students' progress.

- **Progression**

To ensure that the qualification framework permits individuals to move through the levels of the national qualification via different, appropriate combinations of the components of the delivery system.

- **Portability**

To enable students to transfer credits of qualifications from one learning institution and/or employer to another institution or employer.

- **Articulation**

To allow for vertical and horizontal mobility in the education system when accredited pre-requisites have been successfully completed.

- **Recognition of Prior Learning**

To grant credits for a unit of learning following an assessment or if a student possesses the capabilities specified in the outcomes statement.

- **Validity of assessments**

To ensure assessment covers a broad range of knowledge, skills, values and attitudes (SKVAs) needed to demonstrate applied competency. This is achieved through:

- clearly stating the outcome to be assessed;
- selecting the appropriate or suitable evidence;
- matching the evidence with a compatible or appropriate method of assessment; and
- selecting and constructing an instrument(s) of assessment.

- **Reliability**

To assure assessment practices are consistent so that the same result or judgment is arrived at if the assessment is replicated in the same context. This demands consistency in the interpretation of evidence; therefore careful monitoring of assessment is vital.

- **Fairness and transparency**

To verify that no assessment process or method(s) hinders or unfairly advantages any student. The following could constitute unfairness in assessment:

- Inequality of opportunities, resources or teaching and learning approaches
- Bias based on ethnicity, race, gender, age, disability or social class
- Lack of clarity regarding Learning Outcome being assessed
- Comparison of one student's work with another's, based on learning styles and language

- **Practicability and cost-effectiveness**

To integrate assessment practices within an outcomes-based education and training system and strive for cost and time-effective assessment.

## **2 ASSESSMENT FRAMEWORK FOR VOCATIONAL QUALIFICATIONS**

The assessment structure for the National Certificates (Vocational) qualification is as follows:

### **2.1 Internal continuous assessment (ICASS)**

Knowledge, skills values, and attitudes (SKVAs) are assessed throughout the year using assessment instruments such as projects, tests, assignments, investigations, role-play and case studies. The internal continuous assessment (ICASS) practical component is undertaken in a real workplace, a workshop or a "Structured Environment". This component is moderated internally, and externally quality assured by Umalusi. All internal continuous assessment (ICASS) evidence is kept in a Portfolio of Evidence (PoE) and must be readily available for monitoring, moderation and verification purposes.

### **2.2 External summative assessment (ESASS)**

The external summative assessment is either a single paper or a set of written papers set to the requirements of the Subject Learning Outcomes. The Department of Education administers the theoretical component according to relevant assessment policies.

A compulsory component of external summative assessment (ESASS) is the **integrated summative assessment task (ISAT)**. This assessment task draws on the students' cumulative learning throughout the year. The task requires **integrated application of competence** and is executed under strict assessment conditions. The task should take place in a simulated or "Structured Environment". The integrated summative assessment task (ISAT) is the most significant test of students' ability to apply acquired knowledge.

The integrated assessment approach allows students to be assessed in more than one subject with the same integrated summative assessment task (ISAT).

External summative assessments will be conducted annually between October and December, with provision made for supplementary sittings.

### 3 MODERATION OF ASSESSMENT

#### 3.1 Internal moderation

Assessment must be moderated according to the internal moderation policy of the Further Education and Training (FET) college. Internal college moderation is a continuous process. The moderator's involvement starts with the planning of assessment methods and instruments and follows with continuous collaboration with and support to the assessors. Internal moderation creates common understanding of Assessment Standards and maintains these across vocational programmes.

#### 3.2 External moderation

External moderation is conducted by the Department of Education, Umalusi and, where relevant, an Education and Training Quality Assurance (ETQA) body according to South African Qualifications Authority (SAQA) and Umalusi standards and requirements.

The external moderator:

- monitors and evaluates the standard of all summative assessments;
- maintains standards by exercising appropriate influence and control over assessors;
- ensures proper procedures are followed;
- ensures summative integrated assessments are correctly administered;
- observes a minimum sample of ten (10) to twenty-five (25) percent of summative assessments;
- gives written feedback to the relevant quality assessor; and
- moderates in case of a dispute between an assessor and a student.

Policy on inclusive education requires that assessment procedures be customised for students who experience barriers to learning, and supported to enable these students to achieve their maximum potential.

### 4 PERIOD OF VALIDITY OF INTERNAL CONTINUOUS ASSESSMENT (ICASS)

The period of validity of the internal continuous assessment mark is determined by the *National Policy on the Conduct, Administration and Management of the Assessment of the National Certificates (Vocational)*.

The internal continuous assessment (ICASS) must be re-submitted with each examination enrolment for which it constitutes a component.

### 5 ASSESSOR REQUIREMENTS

Assessors must be subject specialists and should ideally be declared competent against the standards set by the ETDP SETA or be a qualified educator. If the lecturer conducting the assessments is not a qualified educator or has not been declared a competent assessor, an assessor who has been declared competent may be appointed to oversee the assessment process to ensure the quality and integrity of assessments.

### 6 TYPES OF ASSESSMENT

Assessment benefits the student and the lecturer. It informs students about their progress and helps lecturers make informed decisions at different stages of the learning process. Depending on the intended purpose, different types of assessment can be used.

## 6.1 Baseline assessment

At the beginning of a level or learning experience, baseline assessment establishes the knowledge, skills, values and attitudes (SKVAs) that students bring to the classroom. This knowledge assists lecturers to plan learning programmes and learning activities.

## 6.2 Diagnostic assessment

This assessment diagnoses the nature and causes of learning barriers experienced by specific students. It is followed by guidance, appropriate support and intervention strategies. This type of assessment is useful to make referrals for students requiring specialist help.

## 6.3 Formative assessment

This assessment monitors and supports teaching and learning. It determines student strengths and weaknesses and provides feedback on progress. It determines if a student is ready for summative assessment.

## 6.4 Summative assessment

This type of assessment gives an overall picture of student progress at a given time. It determines whether the student is sufficiently competent to progress to the next level.

# 7 PLANNING ASSESSMENT

An assessment plan should cover three main processes:

## 7.1 Collecting evidence

The assessment plan indicates which Subject Outcomes and Assessment Standards will be assessed, what assessment method or activity will be used and when this assessment will be conducted.

## 7.2 Recording

Recording refers to the assessment instruments or tools with which the assessment will be captured or recorded. Therefore, appropriate assessment instruments must be developed or adapted.

## 7.3 Reporting

All the evidence is put together in a report to deliver a decision for the subject.

# 8 METHODS OF ASSESSMENT

Methods of assessment refer to who carries out the assessment and includes lecturer assessment, self-assessment, peer assessment and group assessment.

|                            |                                                                                                                                                             |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>LECTURER ASSESSMENT</b> | The lecturer assesses students' performance against given criteria in different contexts, such as individual work, group work, etc.                         |
| <b>SELF-ASSESSMENT</b>     | Students assess their own performance against given criteria in different contexts, such as individual work, group work, etc.                               |
| <b>PEER ASSESSMENT</b>     | Students assess another student's or group of students' performance against given criteria in different contexts, such as individual work, group work, etc. |
| <b>GROUP ASSESSMENT</b>    | Students assess the individual performance of other students within a group or the overall performance of a group of students against given criteria.       |

# 9 INSTRUMENTS AND TOOLS FOR COLLECTING EVIDENCE

All evidence collected for assessment purposes is kept or recorded in the student's Portfolio of Evidence (PoE).

The following table summarises a variety of methods and instruments for collecting evidence. A method and instrument is chosen to give students ample opportunity to demonstrate that the Subject Outcome has been attained. This will only be possible if the chosen methods and instruments are appropriate for the target group and the Specific Outcome being assessed.

|                               | METHODS FOR COLLECTING EVIDENCE                                                                                                                                |                                                                                                                                                                                                                                                                |                                                                                                                                                                            |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               | Observation-based<br>(Less structured)                                                                                                                         | Task-based<br>(Structured)                                                                                                                                                                                                                                     | Test-based<br>(More structured)                                                                                                                                            |
| <b>Assessment instruments</b> | <ul style="list-style-type: none"> <li>• Observation</li> <li>• Class questions</li> <li>• Lecturer, student, parent discussions</li> </ul>                    | <ul style="list-style-type: none"> <li>• Assignments or tasks</li> <li>• Projects</li> <li>• Investigations or research</li> <li>• Case studies</li> <li>• Practical exercises</li> <li>• Demonstrations</li> <li>• Role-play</li> <li>• Interviews</li> </ul> | <ul style="list-style-type: none"> <li>• Examinations</li> <li>• Class tests</li> <li>• Practical examinations</li> <li>• Oral tests</li> <li>• Open-book tests</li> </ul> |
| <b>Assessment tools</b>       | <ul style="list-style-type: none"> <li>• Observation sheets</li> <li>• Lecturer's notes</li> <li>• Comments</li> </ul>                                         | <ul style="list-style-type: none"> <li>• Checklists</li> <li>• Rating scales</li> <li>• Rubrics</li> </ul>                                                                                                                                                     | <ul style="list-style-type: none"> <li>• Marks (e.g. %)</li> <li>• Rating scales (1-7)</li> </ul>                                                                          |
| <b>Evidence</b>               | <ul style="list-style-type: none"> <li>• Focus on individual students</li> <li>• Subjective evidence based on lecturer observations and impressions</li> </ul> | <p><b>Open middle:</b> Students produce the same evidence but in different ways.</p> <p><b>Open end:</b> Students use same process to achieve different results.</p>                                                                                           | Students answer the same questions in the same way, within the same time.                                                                                                  |

## 10 TOOLS FOR ASSESSING STUDENT PERFORMANCE

**Rating scales** are marking systems where a symbol (such as 1 to 7) or a mark (such as 5/10 or 50%) is defined in detail. The detail is as important as the coded score. Traditional marking, assessment and evaluation mostly used rating scales without details such as what was right or wrong, weak or strong, etc.

**Task lists** and **checklists** show the student what needs to be done. These consist of short statements describing the expected performance in a particular task. The statements on the checklist can be ticked off when the student has adequately achieved the criterion. Checklists and task lists are useful in peer or group assessment activities.

**Rubrics** are a hierarchy (graded levels) of criteria with benchmarks that describe the minimum level of acceptable performance or achievement for each criterion. Use of rubrics provides a different way of assessing and cannot be compared to tests. Each criterion described in the rubric must be assessed separately. Mainly two types of rubrics, namely holistic and analytical, are used.

## 11 SELECTING AND/OR DESIGNING RECORDING AND REPORTING SYSTEMS

The selection or design of recording and reporting systems depends on the purpose of recording and reporting student achievement. **Why** particular information is recorded and **how** it is recorded determine which instrument will be used.

Computer-based systems, for example spreadsheets, are cost and time effective. The recording system should be user-friendly and information should be easily accessed and retrieved.

## 12 COMPETENCE DESCRIPTIONS

All assessment should award marks to evaluate specific assessment tasks. However, marks should be awarded against rubrics and not be simply be a total of ticks for right answers. Rubrics should explain the competence level descriptors for the skills, knowledge, values and attitudes (SKVAs) that a student must demonstrate to achieve each level of the rating scale.

When lecturers or assessors prepare an assessment task or question, they must ensure that the task or question addresses an aspect of a Subject Outcome. The relevant Assessment Standard must be used to create the rubric to assess the task or question. The descriptions must clearly indicate the minimum level of attainment for each category on the rating scale.



### 13 STRATEGIES FOR COLLECTING EVIDENCE

A number of different assessment instruments may be used to collect and record evidence. Examples of instruments that can be (adapted and) used in the classroom include:

#### 13.1 Record sheets

The lecturer observes students working in a group. These observations are recorded in a summary table at the end of each project. The lecturer can design a record sheet to observe students' interactive and problem-solving skills, attitudes towards group work and involvement in a group activity.

#### 13.2 Checklists

Checklists should have clear categories to ensure that the objectives are effectively met. The categories should describe how the activities are evaluated and against which criteria they are evaluated. Space for comments is essential.

## SECTION C: ASSESSMENT IN INTRODUCTION TO COMPUTERS

### 1 SCHEDULE OF ASSESSMENT

At NQF levels 2, 3 and 4, lecturers will conduct assessments as well as develop a schedule of formal assessments that will be undertaken in the year. All three levels also have an external examination that accounts for 50 percent of the total mark. The marks allocated to assessment tasks completed during the year, kept or recorded in a PoE account for the other 50 percent.

The PoE and the external assessment include practical and written components. The practical assessment in Introduction to Computers must, where necessary, be subjected to external moderation by Umalusi or an appropriate Education and Training Quality Assurance (ETQA) body, appointed by the Umalusi Council in terms of Section 28(2) of the *General and Further Education and Training Quality Assurance Act, 2001 (Act No. 58 of 2001)*.

### 2 RECORDING AND REPORTING

Introduction to Computers, as is the case for all the other Vocational subjects, is assessed according to five levels of competence. The level descriptions are explained in the following table.

#### *Scale of Achievement for the Vocational component*

| RATING CODE | RATING            | MARKS % |
|-------------|-------------------|---------|
| 5           | Outstanding       | 80-100  |
| 4           | Highly competent  | 70-79   |
| 3           | Competent         | 50-69   |
| 2           | Not yet competent | 40-49   |
| 1           | Not achieved      | 0-39    |

The programme of assessment should be recorded in the Lecturer's Portfolio of Assessment for each subject. The following at least should be included in the Lecturer's Assessment Portfolio:

- A contents page
- The formal schedule of assessment
- The requirements for each assessment task
- The tools used for each assessment task
- Recording instrument(s) for each assessment task
- A mark sheet and report for each assessment task

The college must standardise these documents.

The student's PoE must include at least:

- A contents page
- The assessment tasks according to the assessment schedule
- The assessment tools or instruments for the task
- A record of the marks (and comments) achieved for each task

Where a task cannot be contained as evidence in the PoE, its exact location must be recorded and it must be readily available for moderation purposes.

The following units guide internal assessment in Introduction to Computers - Level 2:

| NUMBER OF UNITS | ASSESSMENT            | COVERAGE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3               | Formal written tests  | One or more completed topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 1               | Internal written exam | All completed topics                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 3               | Practical assessments | <ul style="list-style-type: none"><li>• 1.2 Truth tables and Boolean expressions</li><li>• 2.2 Hardware and load related software connections, anti-virus software, security protocols (access codes) and network system components</li><li>• 2.3. PC trouble shooting, maintenance, hardware faults and printer faults</li><li>• 3.1 basic computer operations such as creating a file, saving a file, deleting a file, printing contents from a file, installation of application programs/drivers are performed and navigation of the windows desk top, formatted discs and files copied</li><li>• 4.1 Producing documents on word processing application programmes</li><li>• 4.2 Process information using a spreadsheet application programme</li><li>• 5.1- 5.3 Use of the internet, sending and receiving e-mails and development of a Power Point presentation.</li></ul> |

# **ASSESSMENT OF INTRODUCTION TO COMPUTERS LEVEL 2**

### 3 INTERNAL ASSESSMENT OF SUBJECT OUTCOMES IN INTRODUCTION TO COMPUTERS – LEVEL 2

#### Topic 1: Define, explain and apply binary logic terminology.

| SUBJECT OUTCOME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.1 Define and explain binary logic terminology.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| ASSESSMENT STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <ul style="list-style-type: none"> <li>The logic “AND” decision and “OR” decision is explained.</li> <li>The inverter “NOT Gate”, the “NOR” Gate and the “NAND” gate is explained.</li> <li>The terms binary logic, bits, bytes, word and nibble are explained.</li> <li>The binary system is defined and explained in terms of voltage levels and memory storage components.</li> <li>Binary as a form of a control signal is explained.</li> <li>Explanations of how logic can be used in mechatronic safety related circuits and how binary logic is used are given.</li> </ul> | <ul style="list-style-type: none"> <li>Explain the logic “AND” decision and the logic “OR” decision.</li> <li>Explain the inverter “NOT Gate”, the “NOR” Gate and the “NAND” gate.</li> <li>Explain the terms binary logic, bits, bytes, word and nibble.</li> <li>Define and explain the binary system in terms of voltage levels and memory storage components.</li> <li>Explain binary as a form of a control signal.</li> <li>Explain how logic can be used in mechatronic safety related circuits and how binary logic is used.</li> </ul> |
| ASSESSMENT TASKS OR ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <ul style="list-style-type: none"> <li>Class questions, oral tests and open-book tests on the terms and concepts defined and explained.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| SUBJECT OUTCOME                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.2 Apply binary logic.                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                          |
| ASSESSMENT STANDARDS                                                                                                                                                                                                                                                                                                                                            | LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>Binary number system is explained using switching logic.</li> <li>Gating networks are developed from written expressions.</li> <li>Gate networks are developed using switching logic.</li> <li>Truth tables and Boolean expressions are determined from logic gates.</li> <li>Binary arithmetic is performed.</li> </ul> | <ul style="list-style-type: none"> <li>Demonstrate an understanding of binary number systems using switching logic.</li> <li>Develop gating networks from written expressions.</li> <li>Develop gate networks using switching logic.</li> <li>Determine truth tables and Boolean expressions from logic gates.</li> <li>Demonstrate the ability to perform binary arithmetic.</li> </ul> |
| ASSESSMENT TASKS OR ACTIVITIES                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                          |
| <ul style="list-style-type: none"> <li>Assignment on binary number systems.</li> <li>Project on gating networks.</li> <li>Practical exercises on Truth tables and Boolean expressions.</li> <li>Open-book test on binary arithmetic.</li> </ul>                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                          |

#### Topic 2: Identify, describe and connect a basic PC.

| SUBJECT OUTCOME                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.1 Identify and describe an overview of a basic PC system.                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                               |
| <i>Range: Input devices: Mouse, keyboard, pointers. Output devices: Monitor, printers (dot matrix, ink jet, laser), scanners, modems. Processor: Mother board (CPU, ALU). Memory (RAM, ROM), Expansion cards: sound, graphics and interface devices. Memory devices: Floppy disk, CD-ROM, Hard disk, flash drives (memory stick).</i>                                               |                                                                                                                                                                                                                                                                                                                                               |
| ASSESSMENT STANDARDS                                                                                                                                                                                                                                                                                                                                                                | LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>The following terms and concepts are described: <ul style="list-style-type: none"> <li>what a computer is, the various uses of the computer and related applications.</li> <li>the differences between analogue, digital and hybrid computers.</li> <li>the computer as a system and the terms hardware and software.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>Describe: <ul style="list-style-type: none"> <li>what a computer is, the various uses of the computer and related applications.</li> <li>the differences between analogue, digital and hybrid computers.</li> <li>the computer as a system and the terms hardware and software.</li> </ul> </li> </ul> |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>the uses with regard to processing, control and development.</li> <li>the computer broadly in the context of arithmetic, comparison and storage.</li> <li>the various parts and the function of the CPU.</li> <li>primary storage, registers and buffers, control bus, address bus and data bus.</li> <li>how data is moved by execution of an instruction.</li> <li>how data is represented in computers.</li> <li>how data is transferred using serial, parallel and USB interfaces.</li> <li>Various input and output methods and devices are listed and described.</li> <li>Several forms of secondary storage are named and described.</li> <li>Various forms of networking systems are explained.</li> <li>Hardware types are identified and parameters for connectivity explained.</li> </ul> | <ul style="list-style-type: none"> <li>the uses with regard to processing, control and development.</li> <li>the computer broadly in the context of arithmetic, comparison and storage.</li> <li>the various parts and the function of the CPU.</li> <li>primary storage, registers and buffers, control bus, address bus and data bus.</li> <li>how data is moved by execution of an instruction.</li> <li>how data is represented in computers.</li> <li>how data is transferred using serial, parallel and USB interfaces.</li> <li>List and describe various input and output methods and devices.</li> <li>Name and describe several forms of secondary storage.</li> <li>Explain various forms of networking systems.</li> <li>Demonstrate the ability to identify and explain hardware type and parameters for connectivity.</li> </ul> |
| <b>ASSESSMENT TASKS OR ACTIVITIES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>Class questions, role-play and class test on the terms and concepts described.</li> <li>An open-book test on secondary storage.</li> <li>Observation sheets on hardware type and parameters.</li> <li>Checklists on input and output methods and devices.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| <b>SUBJECT OUTCOME</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2.2 Identify and connect PC hardware.</b><br><i>Range: CPU, monitor, keyboard, mouse, printers, scanner, hard-drives, and related driver software.</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>ASSESSMENT STANDARDS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>LEARNING OUTCOMES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"> <li>The following topics are identified and explained: <ul style="list-style-type: none"> <li>hardware and explain connectivity procedure and related safety precautions. Identify relevant software and explain function and related computer parameters.</li> <li>correct cable types for connectivity.</li> </ul> </li> <li>Hardware is identified and related software loaded and connected in accordance with procedure in a safe manner.</li> <li>The following concepts are explained: <ul style="list-style-type: none"> <li>hardware specifications and parameters.</li> <li>the various cable types and their connections (serial, parallel, USB).</li> <li>various extension cards that are available by their function (video, printer, sound).</li> <li>the importance of hardware conditions when setting up a PC.</li> <li>principles of computer networks.</li> </ul> </li> <li>The following concepts are described: <ul style="list-style-type: none"> <li>antivirus procedures and identify methods of protecting the computer against viruses.</li> <li>data communication and related elements (computer, sender, receiver and transmission media).</li> <li>the differences between LAN and WAN.</li> <li>the differences between medium of transmission systems (twist pair, coaxial, optic fibre, wireless).</li> <li>LAN system configurations (star, bus, ring)</li> </ul> </li> <li>Check lists are used to verify physical connection between computer components.</li> <li>Environment conditions are considered when setting up a computer.</li> <li>Antivirus software is used to protect the computer.</li> <li>Security protocols (access codes) are set up.</li> </ul> | <ul style="list-style-type: none"> <li>Identify: <ul style="list-style-type: none"> <li>hardware and explain connectivity procedure and related safety precautions. Identify relevant software and explain function and related computer parameters.</li> <li>correct cable types for connectivity.</li> </ul> </li> <li>Identify and connect hardware and load related software in accordance with procedure in a safe manner.</li> <li>Explain: <ul style="list-style-type: none"> <li>hardware specifications and parameters.</li> <li>the various cable types and their connections (serial, parallel, USB).</li> <li>various extension cards that are available by their function (video, printer, sound).</li> <li>the importance of hardware conditions when setting up a PC.</li> <li>principles of computer networks.</li> </ul> </li> <li>Describe: <ul style="list-style-type: none"> <li>antivirus procedures and identify methods of protecting the computer against viruses.</li> <li>data communication and related elements (computer, sender, receiver and transmission media).</li> <li>the differences between LAN and WAN.</li> <li>the differences between medium of transmission systems (twist pair, coaxial, optic fibre, wireless).</li> <li>LAN system configurations (star, bus, ring)</li> </ul> </li> <li>Use check lists to verify physical connection between computer components.</li> <li>Consider environment conditions when setting up a computer.</li> <li>Use antivirus software to protect the computer.</li> <li>Set up security protocols (access codes).</li> </ul> |

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| <ul style="list-style-type: none"> <li>• Network system components are connected.</li> </ul>                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>• Connect network system components.</li> </ul> |
| <b>ASSESSMENT TASKS OR ACTIVITIES</b>                                                                                                                                                                                                                                                                              |                                                                                        |
| <ul style="list-style-type: none"> <li>• Assignments or tasks and open-book tests on the concepts and topics that are explained.</li> <li>• Practical exercises on hardware and load related software connections, antivirus software, security protocols (access codes) and network system components.</li> </ul> |                                                                                        |

### Topic 3: Explain an operating system, troubleshoot and repair a personal computer.

| <b>SUBJECT OUTCOME</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <b>3.1: Operate a file management system.</b><br><i>Range: Booting up process; the windows desk top ;the start button; Windows explorer; maximise, minimise and resizing; installing programs; files and folders; drag and drop; customising your desk top; Windows application and tools; formatting and clipboard viewer; security; deleting files; icons and file extensions; fonts; printing .</i>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>ASSESSMENT STANDARDS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>LEARNING OUTCOMES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <ul style="list-style-type: none"> <li>• Theoretical concepts related to the operation of a file management system are explained: <ul style="list-style-type: none"> <li>▪ booting up process when turning on the PC.</li> <li>▪ function and purpose of the windows desk top.</li> <li>▪ purpose of the recycle bin.</li> <li>▪ purpose of the start button and related applications.</li> <li>▪ function of windows explorer.</li> <li>▪ function of <i>My Computer</i>.</li> </ul> </li> <li>• PC operation concepts are described: <ul style="list-style-type: none"> <li>▪ to maximise, minimise and resize windows/objects.</li> <li>▪ programs are installed using windows.</li> <li>▪ programs, folders, files and documents are opened and closed.</li> <li>▪ to create files and folders.</li> <li>▪ the desk top can be customised.</li> <li>▪ files can be deleted.</li> <li>▪ printing is achieved from windows.</li> </ul> </li> <li>• The following topics are explained: <ul style="list-style-type: none"> <li>▪ formatting a disk.</li> <li>▪ security in the context of a personal computer.</li> </ul> </li> <li>• Windows applications are identified, and the manner in which they can be used is explained (scan disk, backing up, compression, disk clean up, disk defragmenter).</li> <li>• Booting up and shutting down a PC system (cold and warm start) is executed.</li> <li>• Windows desk top is navigated, and basic computer operations such as creating a file, saving a file, deleting a file, printing contents from a file, installation of application programs/drivers are performed.</li> <li>• Error messages are identified and appropriate action taken.</li> <li>• Removable discs and memory sticks are formatted and files copied to and from a disk.</li> <li>• The active disk drive is changed.</li> <li>• A menu driven program is run and exited.</li> <li>• Computer files are managed (directories &amp; folders are created, located and their contents displayed, files are located and contents displayed, files are copied , renamed, moved to different directories and deleted, files are backed up).</li> <li>• Documents are printed.</li> </ul> | <ul style="list-style-type: none"> <li>• Explain the <ul style="list-style-type: none"> <li>▪ booting up process when turning on the PC.</li> <li>▪ function and purpose of the windows desk top.</li> <li>▪ purpose of the recycle bin.</li> <li>▪ purpose of the start button and related applications.</li> <li>▪ function of windows explorer.</li> <li>▪ function of <i>My Computer</i>.</li> </ul> </li> <li>• Describe how <ul style="list-style-type: none"> <li>▪ to maximise, minimise and resize windows/objects.</li> <li>▪ programs are installed using windows.</li> <li>▪ programs, folders, files and documents are opened and closed.</li> <li>▪ to create files and folders.</li> <li>▪ the desk top can be customised.</li> <li>▪ files can be deleted.</li> <li>▪ printing is achieved from windows.</li> </ul> </li> <li>• Explain what is meant by <ul style="list-style-type: none"> <li>▪ formatting a disk.</li> <li>▪ security in the context of a personal computer.</li> </ul> </li> <li>• Explain what Windows applications are and how they can be used (scan disk, backing up, compression, disk clean up, disk defragmenter).</li> <li>• Boot up and shut down a PC system (cold and warm start).</li> <li>• Navigate around the Windows desk top to perform basic computer operations such as creating a file, saving a file, deleting a file, printing contents from a file, installation of application programs/drivers.</li> <li>• Identify error messages and take appropriate action.</li> <li>• Format a removable disc / memory stick and copy files to and from a disk.</li> <li>• Change the active disk drive.</li> <li>• Run and exit a menu driven program.</li> <li>• Manage computer files (directories &amp; folders are created, located and their contents displayed, files are located and contents displayed, files are copied, renamed, moved to different directories and deleted, files are backed up).</li> <li>• Print documents.</li> </ul> |
| <b>ASSESSMENT TASKS OR ACTIVITIES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>• Observations, class questions and rubrics on theoretical concepts related to the operation of a file management system.</li> <li>• A project on PC operation concepts.</li> <li>• Case studies on error messages.</li> <li>• Practical exercises on basic computer operations such as creating a file, saving a file, deleting a file, printing</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

contents from a file, installation of application programs/drivers are performed and navigation of the windows desk top, formatted discs and files copied,

- Demonstrations and role-play on windows applications, booting up and shutting down a PC system.
- A class test on printing documents.
- Rating scales on management of computer files.

## SUBJECT OUTCOME

### 3.2. Troubleshoot and repair common PC faults and perform related maintenance.

*Range: Windows, display, memory, disk drive, modems, keyboard, printer, scanner. maintenance (heat, dust, magnetic fields, power surges and electrostatic electricity).*

| ASSESSMENT STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
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| <ul style="list-style-type: none"> <li>• The following common faults and maintenance concepts are explained: <ul style="list-style-type: none"> <li>▪ user incurred problems and their related solutions (shutting down, uninstalling/installing programs, connecting peripherals, over extending PC capabilities).</li> <li>▪ Windows related problems with respect to cause and solution/s (invalid system, general protection fault, wont shut down, lock up/freeze, restarting defragmenter, CD auto-play, slow running PC, programs wont run at all, lost task bar, icons damaged or mixed up).</li> <li>▪ display problems from cause to solution/s (blank monitor screen, goes blank after inactivity, garbled text is displayed, incorrect size is displayed, parallel lines displayed).</li> <li>▪ memory related problems from cause to solution (out of memory message).</li> <li>▪ disk drive related problems from cause to solution (drives not being recognised by the system, unable to access removable drive and CD-ROM drive, rapid memory loss in hard drive).</li> <li>▪ memory related problems from cause to solution (modem not recognised by the system, software reporting no dial tone, does not work at specified speed, internet periodically broken, on-line connections occasionally pause before picking up again).</li> <li>▪ keyboard related problems from cause to solution (keyboard error at start up, slow keyboard response, characters not corresponding to keyboard).</li> <li>▪ printer related problems from cause to solution (completely dead, power light on printer not working, software indicates printer is off line, appears alright but nothing printed, print quality is poor).</li> <li>▪ scanner related problems from cause to solution (operation causes PC to crash, TWAIN error reported, scanned image does not have the scanned information, long time taken to display image on screen).</li> <li>▪ ongoing maintenance and care that applies to using a PC (heat, dust, magnets, power surges, electrostatic electricity, EMC).</li> </ul> </li> <li>• Apply trouble shooting knowledge to rectify PC problems in the workplace.</li> <li>• Apply maintenance to personal computers in the workplace.</li> <li>• Identify simple hardware faults (power off, loose or disconnected plugs).</li> <li>• Isolate hardware faults to a module/component.</li> </ul> | <ul style="list-style-type: none"> <li>• Explain: <ul style="list-style-type: none"> <li>▪ user incurred problems and their related solutions (shutting down, uninstalling /installing programs, connecting peripherals, over extending PC capabilities).</li> <li>▪ Windows related problems with respect to cause and solution/s (invalid system, general protection fault, will not shut down, lock up/freeze, restarting defragmenter, CD auto-play, slow running PC, programs will not run at all, lost task bar, icons damaged or mixed up).</li> <li>▪ display problems from cause to solution (blank monitor screen, goes blank after inactivity, garbled text is displayed, incorrect size is displayed, parallel lines displayed).</li> <li>▪ memory related problems from cause to solution (out of memory message).</li> <li>▪ disk drive related problems from cause to solution (drives not being recognised by the system, unable to access removable drive and CD-ROM drive, rapid memory loss in hard drive).</li> <li>▪ memory related problems from cause to solution (modem not recognised by the system, software reporting no dial tone, does not work at specified speed, internet periodically broken, on-line connections occasionally pause before picking up again).</li> <li>▪ keyboard related problems from cause to solution (keyboard error at start up, slow keyboard response, characters not corresponding to keyboard).</li> <li>▪ printer related problems from cause to solution (completely dead, power light on printer not working, software indicates printer is off line, appears correct but nothing printed, print quality is poor).</li> <li>▪ scanner related problems from cause to solution (operation causes PC to crash, TWAIN error reported, scanned image does not have the scanned information, long time taken to display image on screen).</li> <li>▪ ongoing maintenance and care that applies to using a PC (heat, dust, magnets, power surges, electrostatic electricity, EMC).</li> </ul> </li> <li>• Apply trouble shooting knowledge to rectify PC problems in the workplace.</li> <li>• Apply maintenance to personal computers in the workplace.</li> <li>• Identify simple hardware faults (power off, loose or disconnected plugs).</li> <li>• Isolate hardware faults to a module/component.</li> <li>• Identify simple printer faults and rectify (paper, ink,</li> </ul> |

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| <ul style="list-style-type: none"> <li>Identify simple printer faults and rectify (paper, ink, loose cable/plug, no power).</li> </ul>                                                                                                                                   | loose cable/plug, no power). |
| <b>ASSESSMENT TASKS OR ACTIVITIES</b>                                                                                                                                                                                                                                    |                              |
| <ul style="list-style-type: none"> <li>Observation sheets and practical exercises on PC trouble shooting, maintenance, hardware faults and printer faults.</li> <li>Demonstrations, role-play and a class test on the common faults and maintenance concepts.</li> </ul> |                              |

#### Topic 4: Produce documents and process data.

| <b>SUBJECT OUTCOME</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <p><b>4.1 Produce documents on word processing application programmes.</b></p> <p><i>Range: Functions: Import text and graphics, set tabs, headings, footnotes, insert page numbers, set margins, grammar checks, spelling, select fonts, tables.</i></p> <p><i>Documents: Curriculum Vitae, letters, tables, material lists, accident/ incident reports, process cards, fault finding reports.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>ASSESSMENT STANDARDS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>LEARNING OUTCOMES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <ul style="list-style-type: none"> <li>The uses, features and functioning of a word processing programme are explained.</li> <li>A word processing programme and existing document are opened and/or a new document created.</li> <li>Modified and new documents are saved to a removable disc, memory stick, stiffy and/or hard drive.</li> <li>Application help functions are used.</li> <li>Documents are closed.</li> <li>Basic settings on a document setup, such as <i>page orientation, page size, page margins, tabs &amp; leaders (left, right, centred)</i>, are adjusted.</li> <li>Page display modes are changed.</li> <li>Page view magnification tool/zoom is used.</li> <li>The toolbar display is modified.</li> <li>The document setup is modified.</li> <li>Data (words/phrases) are inserted, copied, selected and moved.</li> <li>Text is moved on a document or between documents.</li> <li>A document and text (font type, size, style, colour, alignment, justification hyphenation, indentation, line spacing) is formatted.</li> <li>Documents are previewed and printed.</li> </ul> | <ul style="list-style-type: none"> <li>Explain the uses and features of a word processing programme and how these functions can be achieved.</li> <li>Open a word processing programme, open an existing document and/or create a new document.</li> <li>Save a modified and/or new document to a removable disc, memory stick, stiffy and/or hard drive.</li> <li>Use application help functions.</li> <li>Close a document.</li> <li>Adjust basic settings on a document setup such as <i>page orientation, page size, page margins, tabs, leaders (left, right, centred)</i>.</li> <li>Change page display modes.</li> <li>Use page view magnification tool/zoom.</li> <li>Modify the toolbar display.</li> <li>Modify document setup.</li> <li>Insert, copy, select and move data (words/phrases).</li> <li>Move text on a document or between documents.</li> <li>Format a document and text (font type, size, style, colour, alignment, justification hyphenation, indentation, line spacing).</li> <li>Preview and print a document.</li> </ul> |
| <b>ASSESSMENT TASKS OR ACTIVITIES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <ul style="list-style-type: none"> <li>Practical exercises and class tests on producing documents on word processing application programmes.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| <b>SUBJECT OUTCOME</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
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| <p><b>4.2 Process information using a spreadsheet application programme.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>ASSESSMENT STANDARDS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <b>LEARNING OUTCOMES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"> <li>Spreadsheets are explained.</li> <li>Basic functions that can be performed by means of a spread sheet application program are listed.</li> <li>The advantages of using spreadsheets are listed.</li> <li>Spreadsheet programs available commercially are named.</li> <li>Applications and purposes of spreadsheets in the manufacturing industry are identified.</li> <li>Spreadsheets are used to input data to obtain relevant information required at this level.</li> <li>A spreadsheet application programme is opened.</li> <li>Methods of moving the cell cursor about the spreadsheet are demonstrated.</li> <li>A computer spreadsheet file is produced.</li> </ul> | <ul style="list-style-type: none"> <li>Explain what a spreadsheet is.</li> <li>List basic functions that can be performed by means of a spread sheet application program.</li> <li>List the advantages of using spreadsheets.</li> <li>Name spreadsheet programs available commercially.</li> <li>List the applications and purposes of spreadsheets in the manufacturing industry.</li> <li>Use spreadsheets to input data to obtain relevant information required at this level.</li> <li>Open a spreadsheet application programme.</li> <li>Demonstrate the methods of moving the cell cursor about the spreadsheet.</li> <li>Produce a computer spreadsheet file.</li> <li>Enter data using labels and values.</li> </ul> |



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| <ul style="list-style-type: none"> <li>• Data is entered using labels and values.</li> <li>• Data is formatted to produce a spreadsheet in terms of cell width, alignment, text and number.</li> <li>• Spreadsheet formulae are applied in order to add, multiply, divide and subtract.</li> <li>• Values are audited in accordance with original information, formulae are audited and totals checked.</li> <li>• Spreadsheet files are managed (create, save, copy, rename, abandon changes, locate folder, display folder contents and locate file).</li> <li>• Basic cells are formatted using formatting and editing techniques such as column width, text font, style and size.</li> <li>• Created document are previewed and printed using page orientation, keeping the required layout.</li> </ul> | <ul style="list-style-type: none"> <li>• Format data to produce a spreadsheet in terms of cell width, alignment, text and number.</li> <li>• Apply spreadsheet formulae in order to add, multiply, divide and subtract.</li> <li>• Audit values in accordance with original information, audit formulae and check totals.</li> <li>• Manage spreadsheet files (create, save, copy, rename, abandon changes, locate folder, display folder contents and locate file).</li> <li>• Format basic cells using formatting and editing techniques such as column width, text font, style and size.</li> <li>• Preview created document and print using page orientation, keeping the required layout.</li> </ul> |
| <b>ASSESSMENT TASKS OR ACTIVITIES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Practical exercises and a class test on processing information using a spreadsheet application programme.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

### Topic 5: Use the internet, send and receive e-mails and develop a presentation.

| <b>SUBJECT OUTCOME</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
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| <b>5.1 Use the World Wide Web.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>ASSESSMENT STANDARDS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>LEARNING OUTCOMES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <ul style="list-style-type: none"> <li>• The following terms are explained: <ul style="list-style-type: none"> <li>▪ the term World Wide Web.</li> <li>▪ the term Hyper Text Markup Language (HTML).</li> <li>▪ an internet service provider (ISP).</li> <li>▪ surfing the web.</li> </ul> </li> <li>• The following concepts are described: <ul style="list-style-type: none"> <li>▪ different types of connection to the internet.</li> <li>▪ the features of the web browsing programme.</li> <li>▪ the make up structure of a web address (universal resource locator - URL).</li> <li>▪ uses and features of the web browser.</li> <li>▪ types of software available.</li> </ul> </li> <li>• Logging onto the internet is executed.</li> <li>• A browser is opened and a web page accessed displayed.</li> <li>• The features of the web browser are identified.</li> <li>• Application help functions are used</li> <li>• The web browser is closed.</li> <li>• A web address is accessed.</li> <li>• A URL is opened and data collected.</li> <li>• A hyper link or image link is opened.</li> <li>• A search engine is used to search for information/data using a keyword.</li> <li>• A web page or search report is printed.</li> <li>• Logging off of the internet is executed.</li> </ul> | <ul style="list-style-type: none"> <li>• Explain what is meant by: <ul style="list-style-type: none"> <li>▪ the term World Wide Web.</li> <li>▪ the term Hyper Text Markup Language (HTML).</li> <li>▪ an internet service provider (ISP).</li> <li>▪ surfing the web.</li> </ul> </li> <li>• Describe: <ul style="list-style-type: none"> <li>▪ different types of connection to the internet.</li> <li>▪ the features of the web browsing programme.</li> <li>▪ the make up structure of a web address (universal resource locator - URL).</li> <li>▪ uses and features of the web browser.</li> <li>▪ types of software available.</li> </ul> </li> <li>• Log onto the internet.</li> <li>• Open and start browser and access and display a web page.</li> <li>• Identify the features of the web browser.</li> <li>• Use application help functions.</li> <li>• Close web browser.</li> <li>• Access a web address.</li> <li>• Open a URL and collect data.</li> <li>• Open a hyper link or image link.</li> <li>• Use a search engine to search for information/data using a keyword.</li> <li>• Print a web page or search report.</li> <li>• Log off the internet.</li> </ul> |
| <b>ASSESSMENT TASKS OR ACTIVITIES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Practical exercises, demonstrations and class tests on use of the World Wide Web.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| SUBJECT OUTCOME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.2 Use e-mail to send and receive information.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ASSESSMENT STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>The basic uses of e-mail software are described.</li> <li>The following e-mail terminology is explained: <ul style="list-style-type: none"> <li>Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP).</li> <li>internet security.</li> </ul> </li> <li>Connection is established with an ISP.</li> <li>An e-mail application programme is opened.</li> <li>A mail inbox is opened.</li> <li>Mail messages are opened.</li> <li>A message is created and sent.</li> <li>An address is inserted (mail to field, insert title in subject field add automatic signature, set priority).</li> <li>Available spelling check is used.</li> <li>A file is attached to the message.</li> <li>Copy, paste, delete and cut tools are used.</li> <li>A message is sent.</li> <li>Messages are read and replied to.</li> <li>Addressing functions are used and messages managed.</li> </ul> | <ul style="list-style-type: none"> <li>Describe the basic uses of e-mail software.</li> <li>Explain what is meant by <ul style="list-style-type: none"> <li>Simple Mail Transfer Protocol (SMTP) and Post Office Protocol (POP).</li> <li>internet security.</li> </ul> </li> <li>Establish connection with an ISP.</li> <li>Open an e-mail application programme.</li> <li>Open a mail inbox.</li> <li>Open mail messages.</li> <li>Create and send a message.</li> <li>Insert address (mail to field, insert title in subject field add automatic signature, set priority).</li> <li>Use spelling check if available.</li> <li>Attach a file to the message.</li> <li>Use copy, paste, delete and cut tools.</li> <li>Send a message.</li> <li>Read and reply to messages.</li> <li>Use addressing functions and manage messages.</li> </ul> |
| ASSESSMENT TASKS OR ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <ul style="list-style-type: none"> <li>Practical exercises on the use of e-mail to send and receive information.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

| SUBJECT OUTCOME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.3 Use a presentation programme to create a presentation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ASSESSMENT STANDARDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | LEARNING OUTCOMES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <ul style="list-style-type: none"> <li>The uses of a power point software application programme are explained.</li> <li>The basic features of a presentation program are explained.</li> <li>A presentation application program is opened.</li> <li>A presentation is created using a wizard.</li> <li>An existing presentation is opened, modifications made and saved.</li> <li>A newly created presentation is saved.</li> <li>The presentation is customised using add/format text, slide views, colour schemes, format painter, insert pictures and use hyperlinks.</li> <li>The presentation is run.</li> <li>The presentation printed.</li> </ul> | <ul style="list-style-type: none"> <li>Explain <ul style="list-style-type: none"> <li>the uses of a power point software application programme.</li> <li>the basic features of a presentation program.</li> </ul> </li> <li>Open presentation application program.</li> <li>Create a presentation using a wizard.</li> <li>Open an existing presentation, make modifications and save.</li> <li>Save a newly created presentation.</li> <li>Customise the presentation using add/format text, slide views, colour schemes, format painter, insert pictures and use hyperlinks.</li> <li>Run the presentation.</li> <li>Print the presentation.</li> </ul> |
| ASSESSMENT TASKS OR ACTIVITIES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <ul style="list-style-type: none"> <li>Practical exercises on a presentation programme to create a presentation.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

## 4 SPECIFICATIONS FOR EXTERNAL ASSESSMENT IN INTRODUCTION TO COMPUTERS – LEVEL 2

### 4.1 Integrated summative assessment task (ISAT)

A compulsory component of the external assessment (ESASS) is the **integrated summative assessment task (ISAT)** which draws on the students' cumulative learning achieved throughout the year. The task requires **integrated application of competence** and is executed and recorded in compliance with assessment conditions.

Two approaches to the integrated summative assessment task (ISAT) may be as follows:

- The students are assigned a task at the beginning of the year which they will have to complete in phases during the year to obtain an assessment mark. A final assessment is made at the end of the year when the task is completed.

**OR**

- Students achieve the competencies during the year but the competencies are assessed cumulatively in a single assessment or examination session at the end of the year.

The ISAT is set by an externally appointed examiner and is conveyed to colleges in the first quarter of the year. The integrated assessment approach enables students to be assessed in more than one subject with the same integrated summative assessment task.

### 4.2 National Examination

A national examination is conducted annually in October or November by means of a paper(s) set and moderated externally. The following distribution of cognitive application should be followed:

| LEVEL 2 | KNOWLEDGE AND COMPREHENSION | APPLICATION | ANALYSIS, SYNTHESIS AND EVALUATION |
|---------|-----------------------------|-------------|------------------------------------|
|         | 30%                         | 50%         | 20%                                |

| MARK ALLOCATION PER QUESTION                  |                                                                           |            |
|-----------------------------------------------|---------------------------------------------------------------------------|------------|
| Section 1: Compulsory (must cover all topics) |                                                                           |            |
| Question 1:                                   | Define, explain and apply binary logic terminology.                       | 30         |
| Question 2:                                   | Identify, describe and connect a basic PC.                                | 25         |
| Question 3:                                   | Explain an operating system, troubleshoot and repair a personal computer. | 25         |
| Question 4:                                   | Produce documents and process data.                                       | 10         |
| Question 5:                                   | Use the internet, send and receive e-mails and develop a presentation.    | 10         |
| <b>TOTAL</b>                                  |                                                                           | <b>100</b> |