

A summary of all the changes to  
the NATED Business and Engineering Curricula





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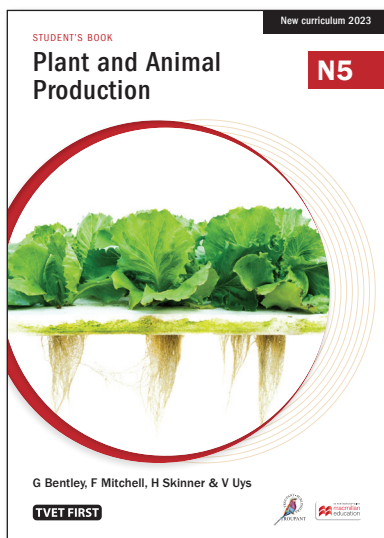
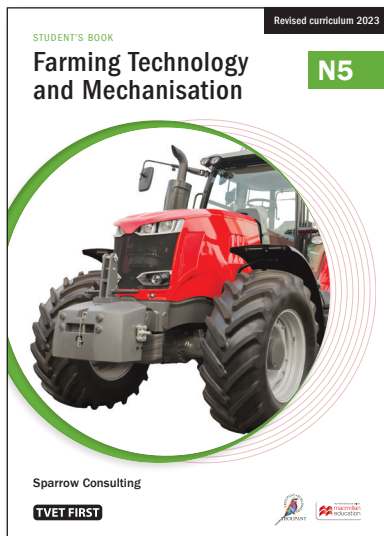
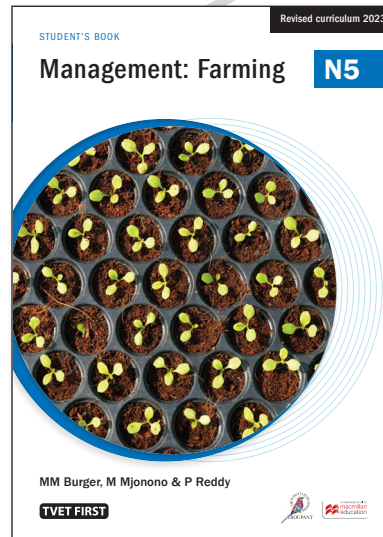
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# Business



## Computer Practice: Farming N5

This document contains important information about the revised curriculum for Computer Practice: Farming N5 (previously called Data Management: Farming N5) for implementation in July 2023.

### Overview of main curriculum changes

- The subject name has changed from Data Management: Farming N5 to Computer Practice: Farming N5.
- The syllabus has been *thoroughly revised and updated* to reflect modern trends in computing.
- *All the learning outcomes have been redeveloped from scratch and renumbered.*
- All the module weightings have been changed. Word processing and spreadsheets now make up 60% of the syllabus. In other words, 80% of the syllabus is now practical and 20% is theory.
- Eight periods (six hours) per week over one semester have been prescribed for this subject.
- A suggested time allocation is provided for lessons and practice/activities for each section.
- Two modules have been removed:
  - Systems software
  - Graphical interface
- Two new modules have been added:
  - **Module 2: Networking concepts** introduces students to types of networks, network architecture and the 'information age'.
  - **Module 5: Presentation application skills** introduces students to the presentation software, PowerPoint, in the farming context.
- The 2023 curriculum reflects the advances made in computing over nearly 20 years since the previous syllabus. Nowadays, students of farming are probably using computers in their work to some degree. This trend is reflected in the updated syllabus:
  - **Module 1** explores ICTs, the digital world and digital citizenship in relation to farming applications.
  - **Module 2** previously dealt with systems software. The revised syllabus covers networking concepts to enable students to grasp the bigger picture of networking. This module now covers LAN, MAN and WAN networks, the architecture of networks, the information age, and using networks such as chat rooms, email, file transfer protocols (FTP), instant messaging and Wikis.
  - **Module 3** deals with word processing (previously covered in Module 4). The graphical interface module has fallen away. While there is some correlation between the old and new word processing syllabi, this module extends the student's knowledge from N4 to increase their capabilities in using word processing software.
  - **Module 4** covers spreadsheets. Here too there is some correlation between the old and the new syllabi. This module expands on the knowledge of spreadsheets students gained from N4. In the revised syllabus students use more spreadsheet functions, including developing and editing a chart.



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- **Module 5** is a new addition to the course. It introduces students to presentation software, specifically PowerPoint, to develop presentations. Again, the use of the software is situated in the farming context to make it relevant to students.

### Changes to examination assessment

Written assessment must include various cognitive skills listed in Bloom's taxonomy. The following table sets out the skills and weighting that applied in the 1996 syllabus.

#### Old standards (1996)

Recall	Application	Synthesis	Analysis	Evaluation
25–35%	35–45%	5–10%	5–15%	5–15%

The table that follows lists the skills that apply in the 2023 syllabus, along with the weighting accorded to each. Note that the weightings for Recall and Application have changed.

#### New standards (2023)

Recall	Application	Synthesis	Analysis	Evaluation
30–40%	30–40%	5–10%	5–15%	5–15%

### More guidance on evaluation

In the 2023 curriculum, the final mark consists of the following:

- Semester mark
- One 3-hour external examination paper (200 marks) at the end of the semester consisting of:
  - theory – 30 minutes
  - practical – 2½ hours

The mark distribution of the content of the question paper is according to the weights of the modules.

- The composition of the final mark is as follows. (The practical component now makes up a much higher proportion of the total marks.):

Semester mark			Examination mark		
Theory	Practical	Total	Theory	Practical	Total
20	<b>80</b>	100	40	<b>160</b>	200

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### Old and new modules and weightings

#### Old curriculum (1996)

<b>Module 1</b>	Microcomputer hardware	10%
<b>Module 2</b>	System software	15%
<b>Module 3</b>	Graphical user interface	10%
<b>Module 4</b>	Word processing	10%
<b>Module 5</b>	Spreadsheets	25%
<b>Module 6</b>	Graphs	5%
<b>Module 7</b>	Database	15%
<b>Module 8</b>	Computerised accounting	10%
<b>Total</b>		<b>100%</b>

#### New curriculum (2023)

<b>Module 1</b>	Computer concepts and application skills	10%
<b>Module 2</b>	Networking concepts	10%
<b>Module 3</b>	Word processing	30%
<b>Module 4</b>	Spreadsheets	30%
<b>Module 5</b>	Presentation application skills	20%
<b>Total</b>		<b>100%</b>

### Detailed comparison of changes to the wording of the syllabus

The following table sets out the changes made to the curriculum. All new/changed content has been colour coded in red.

Previous curriculum (1996)	New curriculum (2023)
<b>Module 1: Microcomputer hardware</b> <b>1.1</b> Peripherals: <ul style="list-style-type: none"> <li>● Keyboard</li> <li>● Mouse</li> <li>● Disk drives, hard disks, diskettes, cassettes, CDs</li> <li>● Visual display units</li> <li>● Printers</li> <li>● Electronic pointing devices/mouses</li> <li>● Switch appliances on/off</li> <li>● Care and maintenance of peripherals</li> </ul>	<b>Module 1: Introduction to computers</b> <b>1.1</b> Introduction to the concepts of ICTs, the digital world and digital citizenship: <ul style="list-style-type: none"> <li>● Introduction to ICTs</li> <li>● The digital world and digital citizenship</li> </ul>

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Previous curriculum (1996)	New curriculum (2023)
<p><b>1.1.1</b> Describe how to use, attach, maintain and care for the peripherals.</p> <p><b>1.2</b> Other peripherals</p> <ul style="list-style-type: none"> <li>● Touch screens</li> <li>● Compact disks</li> <li>● CD-ROM drives/multimedia</li> <li>● Light pens</li> <li>● Modems</li> <li>● Scanners</li> <li>● Speech recognition</li> <li>● Plotters</li> <li>● Digitisers</li> <li>● Voice/fax modems</li> <li>● Tape streamers</li> <li>● Sound cards</li> <li>● Tablets, writing, drawing</li> <li>● Midi-music</li> <li>● Terminals</li> <li>● UPS</li> </ul> <p><b>1.2.1</b> Describe how to use, attach, maintain and care for the peripherals.</p>	<p><b>1.1.1</b> Explain how ICTs impact on the workplace and employment practices. (Range: mobile offices, virtual offices, decentralisation of labour, office automation)</p> <p><b>1.1.2</b> Explain how ICT facilitates everyday business operations. (Range: specific farming operations, office practices and education, shopping and banking, healthcare and government, engineering, communication in the digital age, news transmission/delivery, video technology, forensics)</p> <p><b>1.1.3</b> Discuss examples of computer usage and applications as part of the farming industry.</p> <p><b>1.2</b> Explain what a personal computer is and how it is used:</p> <ul style="list-style-type: none"> <li>● Personal computers (PCs)</li> <li>● Model of a PC</li> <li>● Mobile devices</li> </ul> <p><b>1.2.1</b> Differentiate between the characteristics of a PC and mobile device.</p> <p><b>1.2.2</b> Differentiate between the use and application of PCs and mobile devices.</p> <p><b>1.2.3</b> Describe the components (hardware and software) of a smart phone and a computer and their purpose.</p> <p><b>1.2.4</b> Discuss the concept of mobile computing and mobile devices.</p> <p><b>1.2.5</b> List the advantages and disadvantages of mobile technologies.</p>

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Previous curriculum (1996)	New curriculum (2023)
	<p><b>1.2.6</b> Describe the main components of a smart phone (mobile device) and a computer.</p> <p><b>1.2.7</b> Discuss the concept of a wearable device.</p> <p><b>1.2.8</b> Discuss the difference between Wi-Fi, Bluetooth and NFC connections.</p> <p><b>1.3</b> Exploring the file management operations of the operating system:</p> <ul style="list-style-type: none"> <li>File management concepts</li> <li>Using the operating system</li> </ul> <p><b>1.3.1</b> Perform basic file organisation operations (open a file, folder or a drive; select individual files and folders or collection thereof; sort files according to specific criteria; create, move, copy and restore a file or folder).</p> <p><b>1.3.2</b> Discuss the concept of compressing folders of files.</p> <p><b>1.3.3</b> List examples of file compression utilities and their extensions.</p> <p><b>1.3.4</b> Explain the difference between a compressed folder and a non-compressed folder.</p> <p><b>1.3.5</b> Discuss the concept of a hidden and a system file.</p> <p><b>1.3.6</b> Share files with other people (shared drive); save and share files in the cloud.</p>
<p><b>Module 2: Systems software</b></p> <p><b>2.1</b> Practising of commands in N4 syllabus:</p> <ul style="list-style-type: none"> <li>Use and describe the commands in the N4 syllabus.</li> </ul> <p><b>2.2.</b> Comparison between COPY and DISKCOPY:</p> <ul style="list-style-type: none"> <li>Describe the differences between COPY and DISKCOPY.</li> </ul> <p><b>2.3</b> DOSKEY function:</p> <ul style="list-style-type: none"> <li>Activate the DOSKEY function.</li> </ul>	<p><i>Not covered in the new syllabus</i></p>

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Previous curriculum (1996)	New curriculum (2023)
<p><b>2.4</b> New hard disk without software: Directory structure. Directory index (root): MD MKDIR CD CHDIR RD RMDIR DEL TREE PATH PROMPT TREE</p> <p><b>2.4.1</b> Build a multilevel directory structure and maintain it.</p> <p><b>2.4.2</b> Formulate, write down and apply path names and multilevel tree structures.</p> <p><b>2.5</b> Storage of information on hard disk:</p> <ul style="list-style-type: none"> <li>• Backup of data files</li> <li>• Backup</li> <li>• Restore</li> <li>• MSBackup</li> <li>• Xcopy</li> <li>• File compression</li> </ul> <p><b>2.5.1</b> Formulate the commands for making backups and restore the files, using the correct drives and switches.</p> <p><b>2.5.2</b> Describe the use of file compression for the copying of files.</p> <p><b>2.6</b> Comparison between BACKUP and DISKCOPY:</p> <ul style="list-style-type: none"> <li>• Describe the differences between BACKUP and DISKCOPY.</li> </ul> <p><b>2.7</b> Housekeeping:</p> <ul style="list-style-type: none"> <li>• Permanent removing of unnecessary files</li> <li>• Permanent removing of unnecessary sub-directories</li> <li>• Moving of sub-directories to other sub-directories</li> </ul>	

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Previous curriculum (1996)	New curriculum (2023)
<ul style="list-style-type: none"> <li>• Moving of files</li> <li>• Describe housekeeping for the permanent removal of unnecessary files and sub-directories.</li> <li>• Describe housekeeping for the moving of files and the moving of contents of sub-directories.</li> </ul> <p>2.8 DOS device names:</p> <ul style="list-style-type: none"> <li>• Explain the meaning and usage of each abbreviation.</li> </ul> <p>2.9 Antiviruses:</p> <ul style="list-style-type: none"> <li>• Give a basic explanation of a virus. DOS fault messages.</li> <li>• Describe the use of antivirus software and name two packages available for detecting and removing viruses from an infected system.</li> <li>• Explain and interpret the error messages.</li> </ul>	
<p><i>Not covered in the old syllabus</i></p>	<p><b>Module 2: Networking concepts</b></p> <p>2.1 Different types of networks and architectures:</p> <ul style="list-style-type: none"> <li>• Network architectures</li> </ul> <p>2.1.1 Differentiate between LAN vs. MAN vs. WAN – coverage and where it is used.</p> <p>2.1.2 Discuss the internet as a WAN.</p> <p>2.1.3 Define the term 'network architecture'.</p> <p>2.1.4 Differentiate between network architectures (client server and peer-to-peer, and internet peer-to-peer).</p> <p>2.2 Use of networks to enable the digital era:</p> <ul style="list-style-type: none"> <li>• Information age</li> <li>• Communication networks and tools</li> </ul> <p>2.2.1 Discuss how networks enable the information age.</p> <p>2.2.2 Define the term e-collaboration and discuss how networks enable the concept.</p>



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Previous curriculum (1996)	New curriculum (2023)
	<p><b>2.2.3</b> Discuss how e-concepts progress towards overcoming the digital divide. (Range: e-government, e-learning, e-health, e-education)</p> <p><b>2.2.4</b> Discuss reasons for using networks such as communication, access to/sharing resources, centralisation, file and funds transfer, productivity, leisure. (e.g., chat rooms, email, FTP, instant messaging, web, Wikis, conferencing)</p>
<p><b>Module 3: Graphical user interface</b></p> <p><b>3.1</b> Introductory commands</p> <p><b>3.1.1</b> Program manager</p> <p><b>3.1.2</b> File manager/Explorer</p> <p><b>3.1.3</b> Print manager</p> <ul style="list-style-type: none"> <li>Use and describe basic graphical user interface commands in:             <ul style="list-style-type: none"> <li>the program manager</li> <li>the file manager/explorer</li> <li>the print manager.</li> </ul> </li> </ul>	<p><i>Not covered in the new syllabus</i></p>
<p><b>Module 4: Word processing</b></p> <p><b>4.1</b> Revision of functions in N4 syllabus:</p> <ul style="list-style-type: none"> <li>Use and describe the functions and commands to make printouts of the prescribed learning content.</li> </ul>	<p><b>Module 3: Word processing</b></p> <p><i>Module 4 of the old syllabus and Module 3 of the new syllabus both cover Word processing, however only some of the outcomes overlap to some extent.</i></p> <p><b>3.1</b> Use the integrated and intermediate functions of a word processor:</p> <ul style="list-style-type: none"> <li>Document management, formatting and techniques</li> <li>Importing data from external sources</li> </ul> <p><b>3.1.1</b> Select and use page orientation for different purposes.</p> <p><b>3.1.2</b> Apply file management techniques to the document (printing options such as range of pages; odd or even; number of copies; pages per sheet; send to email, internet or fax).</p> <p><b>3.1.3</b> Add multi-level numbering and bullets.</p>

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Previous curriculum (1996)	New curriculum (2023)
<p>4.2 Superscript:</p> <ul style="list-style-type: none"> <li>• Use superscript in text.</li> </ul> <p>4.3 Subscript:</p> <ul style="list-style-type: none"> <li>• Use subscript in text.</li> </ul> <p>4.4 Page break:</p> <ul style="list-style-type: none"> <li>• Use page break and page combine.</li> </ul> <p>4.5 Search/search and replace</p>	<p><i>This content is included in 3.1.5 in the new curriculum.</i></p> <p>3.1.4 Apply special editing features (<b>paste special</b>, find and replace).</p> <p>3.1.5 Apply intermediate document layout functions (section breaks and sections; headers and footers; page numbers: different first page, odd, even, starting from a specific number).</p>
<p>4.6 Spell check (electronical proofreading):</p> <ul style="list-style-type: none"> <li>• Advantages of spell check</li> <li>• Limitations of spell check</li> <li>• How to use spell check</li> <li>• Use electronic spell check to proofread a document.</li> <li>• Describe the advantages and limitations of spell check.</li> </ul> <p>4.7 Paragraph indent:</p> <ul style="list-style-type: none"> <li>• Indent a paragraph on the left as well as left and right.</li> </ul> <p>4.8 Line spacing:</p> <ul style="list-style-type: none"> <li>• Set line spacing for the entire document or for specified text.</li> </ul> <p>4.9 Tab stops:</p> <ul style="list-style-type: none"> <li>• Set tabs at the beginning of a document or at a specific point in the document.</li> </ul> <p>4.10 Save text on a disk. Copy text to a disk:</p> <ul style="list-style-type: none"> <li>• Save or/and copy the text to a disk.</li> </ul> <p>4.11 Changing of text to upper case/lower case:</p> <ul style="list-style-type: none"> <li>• Change text to upper case/lower case.</li> </ul>	

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Previous curriculum (1996)	New curriculum (2023)
<p><b>4.12</b> Printing of blocked text. Saving of blocked text:</p> <ul style="list-style-type: none"> <li>View (preview) the document before printing and print the document (whole document, one page and multiple pages).</li> </ul> <p><b>4.13</b> Indent:</p> <ul style="list-style-type: none"> <li>Indent a paragraph on the left as well as left and right.</li> </ul> <p><b>4.14</b> Page numbering:</p> <ul style="list-style-type: none"> <li>Insert page numbers for all pages.</li> </ul> <p><b>4.15</b> Handling of two documents:</p> <ul style="list-style-type: none"> <li>Handle two documents simultaneously.</li> </ul> <p><b>4.16</b> Procedure to make a table. Procedure to key in data in a table. Procedure to edit a table:</p> <ul style="list-style-type: none"> <li>Create a table to key data in and edit.</li> </ul> <p><b>4.17</b> Line draw function:</p> <ul style="list-style-type: none"> <li>Use the line draw function.</li> </ul> <p><b>4.18</b> Practical application to farming documents such as letters and forms:</p> <ul style="list-style-type: none"> <li>Perform exercises after mastering the prescribed word processing functions.</li> </ul>	<p><i>This content is included in 3.1.2 in the new curriculum.</i></p> <p><i>This content is included in 3.1.5 in the new curriculum.</i></p> <p><b>3.2</b> Use the mail merge feature in a document:</p> <ul style="list-style-type: none"> <li>Data and data import</li> <li>Creating labels and data table</li> <li>Importing and using external data</li> </ul> <p><b>3.2.1</b> Create a primary document for distribution and mailing purposes, for example, an invitation, notice or label.</p> <p><b>3.2.2</b> Select or create an applicable data source (spreadsheet or word table) for use in the mail merge.</p> <p><b>3.2.3</b> Insert various data labels for the main document.</p>

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Previous curriculum (1996)	New curriculum (2023)
	<p>3.2.4 Merge a mailing list with a letter, label or other document as a new file or printed output.</p> <p>3.2.5 Save and print the mailing list or document.</p>
<p><b>Module 5: Spreadsheets</b></p> <p>5.1 Naming a range of cells:</p> <ul style="list-style-type: none"> <li>Use range names in formulas, functions and combining of spreadsheet ranges.</li> </ul> <p>5.2.1 Accounting functions:</p> <ul style="list-style-type: none"> <li>Use accounting functions.</li> </ul> <p>5.2.2 Input of formulae:</p> <ul style="list-style-type: none"> <li>Use formulae.</li> </ul> <p>5.2.3 Changing the figure format:</p> <ul style="list-style-type: none"> <li>Change the figure format.</li> </ul> <p>5.2.4 Show formulae on screen:</p> <ul style="list-style-type: none"> <li>Show formulae on the screen.</li> </ul> <p>5.2.5 Changing the formulae to figure values:</p> <ul style="list-style-type: none"> <li>Change formulae to figures.</li> </ul> <p>5.2.6 Control over a spreadsheet:</p> <ul style="list-style-type: none"> <li>Use a spreadsheet with confidence.</li> </ul> <p>5.2.7 Printing of spreadsheet:</p> <ul style="list-style-type: none"> <li>Print a spreadsheet with headers and changing margins.</li> </ul>	<p><b>Module 4: Spreadsheets</b></p> <p><i>Module 5 of the old syllabus and Module 4 of the new syllabus both cover spreadsheets, however only some of the outcomes overlap to some extent. The outcomes are far more detailed in the new syllabus and include everything that was in the old syllabus arranged in a more accessible learning format as well as some new topics, e.g. Charts. The Practical applications listed under 5.3 of the old syllabus are practical exercises used throughout the module.</i></p> <p>4.1 Managing and editing a worksheet or spreadsheet:</p> <ul style="list-style-type: none"> <li>Edit a worksheet or spreadsheet.</li> <li>Manage a worksheet or spreadsheet.</li> </ul> <p>4.1.1 Create a new spreadsheet based on a template.</p> <p>4.1.2 Open an existing spreadsheet.</p> <p>4.1.3 Export/Save a spreadsheet in another format. (Range: .pdf, .txt)</p> <p>4.1.4 Switch between different spreadsheets and worksheets.</p> <p>4.1.5 Explore common features of the Ribbon tabs, Quick Access toolbar, Office button and Menus.</p> <p>4.1.6 Use the help function provided.</p> <p>4.1.7 Differentiate and move between a tab sheet, row, column and cell.</p>

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Previous curriculum (1996)	New curriculum (2023)
<p><b>5.3</b> Practical application of spreadsheet functions on farming:</p> <ul style="list-style-type: none"> <li>● Rainfall</li> <li>● Short-term insurance.</li> <li>● Conversion of imperial/metric units, etc.</li> <li>● Salaries, coin analyses</li> <li>● Production figures</li> <li>● Final accounts</li> <li>● Trial balances</li> <li>● Budgets</li> <li>● Carry out exercises after mastering the prescribed spreadsheet functions.</li> </ul>	<p><b>4.2</b> Use basic features to create and edit a spreadsheet:</p> <ul style="list-style-type: none"> <li>● Edit a spreadsheet.</li> <li>● Apply basic formatting.</li> </ul> <p><b>4.2.1</b> Select a row/column or sets of adjacent cells.</p> <p><b>4.2.2</b> Multi-select different rows and cells or columns.</p> <p><b>4.2.3</b> Modify the column and row widths.</p> <p><b>4.2.4</b> Modify the display settings of a column or row or set of cells.</p> <p><b>4.2.5</b> Freeze and unfreeze rows and columns.</p> <p><b>4.2.6</b> Switch between different worksheets.</p> <p><b>4.2.7</b> Insert, edit and delete a worksheet.</p> <p><b>4.2.8</b> Apply good naming techniques in the naming of worksheets.</p> <p><b>4.2.9</b> Edit a worksheet by changing the formatting of cells. (Range: data type, borders, shading, colouring, alignment, wrapping, merge, alignment, merge, text direction, split and autofill)</p> <p><b>4.2.10</b> Apply formatting techniques to rows, columns and sheets by changing the size (width and height), inserting, deleting, hiding, unhiding, using borders and styles.</p> <p><b>4.2.11</b> Reinforce generic/common concepts such as formatting and editing, searching and proofing as in word processor page layout, illustrations.</p>

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Previous curriculum (1996)	New curriculum (2023)
	<p>4.2.12 Display and print the formulae entered into a worksheet.</p> <p>4.2.13 Import data in a different format into a worksheet.</p> <p>4.3 Use formulae and implement advanced functionality to perform intermediate to advanced calculations in a spreadsheet:</p> <ul style="list-style-type: none"> <li>• Use advanced formulae constructs.</li> <li>• Incorporate advanced calculations.</li> </ul> <p>4.3.1 Implement autofill options as part of a spreadsheet.</p> <p>4.3.2 Incorporate and use spreadsheet functions.</p> <p>4.3.3 Use an IF statement/function as part of a worksheet. (Range: IF statement nested to a maximum of two conditions)</p> <p>4.3.4 Use of relational operators (&gt; &lt; &lt;= &gt;= &lt;&gt;) in simple IF functions.</p> <p>4.3.5 Implement rounding off numbers and understand and illustrate the difference between rounding and formatting.</p> <p>4.4 Create and edit charts within a spreadsheet:</p> <ul style="list-style-type: none"> <li>• Charting concepts</li> </ul> <p>4.4.1 Identify the different types of charts.</p> <p>4.4.2 Describe different types of charts and explain their applicable use and purpose (i.e. type/summary of information they convey).</p> <p>4.4.3 Interpret a given chart and make certain deductions.</p> <p>4.4.4 Validate a chart against a set of data.</p> <p>4.4.5 Create a column, line and pie chart.</p> <p>4.4.6 Create format and edit an existing chart by adding and modifying the basic elements and appearance of a chart.</p>



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Previous curriculum (1996)	New curriculum (2023)
	<p>4.4.7 Apply appropriate options to the graph type chosen.</p> <p>4.4.8 Insert a chart as an object or to a separate worksheet.</p> <p>4.4.9 Insert and modify chart titles and legends.</p> <p>4.4.10 Edit the appearance of a chart by changing the fill colour.</p> <p>4.4.11 Edit the appearance of a chart by changing the data labels, gridlines, titles.</p>
<p><i>Not covered in the old syllabus</i></p>	<p><b>Module 5: Presentation application skills</b></p> <p>5.1 Purpose of using presentation software:</p> <ul style="list-style-type: none"> <li>• Purpose and use of presentation software</li> </ul> <p>5.1.1 Define the term 'presentation software'.</p> <p>5.1.2 List and describe different uses of presentations (types of presentations created) to represent information to users.</p> <p>5.1.3 Describe the benefits of using presentation applications.</p> <p>5.1.4 Describe the characteristics of a good presentation document.</p> <p>5.1.5 Discuss how presentations are used to convey information and knowledge and list practical examples of such cases.</p> <p>5.2 Use basic features to create, edit and format a presentation:</p> <ul style="list-style-type: none"> <li>• Create a presentation.</li> <li>• Edit and format a presentation.</li> </ul> <p>5.2.1 Create a presentation incorporating slides using different slide layouts and format themes.</p> <p>5.2.2 Use basic features to format the slides. (Range to format text: highlight text; typing text in bold, italics and underline; typing text in different styles and font sizes; using numbers and bullets first level; using the alignment functions)</p>

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Previous curriculum (1996)	New curriculum (2023)
	<p><b>5.2.3</b> Design a presentation for specific content matter and select a slide layout and format.</p> <p><b>5.2.4</b> Insert relevant clip art or picture in the presentation.</p> <p><b>5.2.5</b> Perform common editing operations on a slide show.</p> <p><b>5.2.6</b> Insert a relevant piece of text or object or chart from a word processor or spreadsheet document into a slide.</p> <p><b>5.2.7</b> Differentiate between embedding and inserting an object.</p>

### TVET First authors

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## Management: Farming N5

This document contains important information about the revised curriculum for Management: Farming N5 for implementation in July 2023.

### Overview of main curriculum changes

The syllabus has been revised and updated and many of the learning objectives have been renumbered. The differences are as follows. References to the 1996 curriculum are in italics.

#### Module 1:

- There is more in-depth discussion of entrepreneurship including the entrepreneurial process (1.1.2.1) and the personality attributes of an entrepreneur (1.1.2.2).
- The approach to the economic importance of the entrepreneur has been significantly updated (1.2.1).
- The functions of an entrepreneur (1.3.1) incorporate 1996 curriculum items 2.1.1–2.1.4 and 3.1.1–3.1.5.
- The learning objective from the previous syllabus 'Name and explain the reasons why farming enterprises fail' is now a broader topic of 'Ways to avoid pitfalls'. It includes managerial competencies, avoiding failure by implementing a turn-around plan as well as ways of measuring a successful turn-around.

#### Module 2:

- The module has not changed much, although particular emphasis is put on strategic planning in agriculture (2.1.1–2.1.3) and more specific risk information is presented (2.7.1).

#### Module 3:

- This is an entirely new module which replaces the previous *Module 3: Farming business plan for a new farming enterprise or a new branch of an existing farming enterprise*.
- The topics in the 1996 curriculum are extensively covered in Management: Farming N5. These topics are as follows:
  1. Marketing plan
  2. Production plan
  3. Financial plan
  4. Administration plan
  5. Personnel plan
  6. Other plans
- The new syllabus **Module 3: Good agricultural practices and technology** introduces the contemporary concept of agricultural practices to ensure food safety. It covers the following topics:
  - 3.1 Description of good agricultural practices
  - 3.2 Importance of good agricultural practices
  - 3.3 Preparation and implementation of good agricultural practices
  - 3.4 Conservation tillage
  - 3.5 System standards and system audits

## Management: Farming N5

- Management of natural resources (3.3.2.3) highlights some very relevant environmental issues for the students.
- New technology in agriculture is introduced (3.4.3) including climate control devices, drones, hybrid seeds, and computer and smart device applications. This gives the students a view of 'smart farming' and the direction in which agriculture is headed.

### Module 4:

The estate planning module presents more specific legal information (4.2 Prerequisites for an efficient/legal will). There is also a more comprehensive look at legal language (4.4). The old syllabus item 5. *How an estate is administered* is expanded in new syllabus 5.5 as follows:

- 5.5.1 Name the requirements of an effective will.
- 5.5.2 Explain the provision for the surviving spouse/partner and to other heirs.
- 5.5.3 Explain continuity of the farming enterprise and the trust.
- 5.5.4 Explain provision for minors including:
  - reason for using testamentary trusts
  - selection of administrators
  - contents of a trust clause.

### Module 5:

- The principles of insurance (5.2) have been added to this module for a more comprehensive understanding of the topic. It is discussed further under long-term, short-term and compulsory insurance.

## Changes to examination assessment

Written assessment must include various cognitive skills listed in Bloom's taxonomy. The following table sets out the skills and weighting that applied in the 1996 syllabus.

### Old standards (1996)

Recall	Application	Analysis	Evaluation
30–40%	40–50%	10–20%	10–20%

The table that follows lists the skills that apply in the 2023 syllabus, along with the weighting accorded to each. (They are unchanged.)

### New standards (2023)

Recall	Application	Analysis	Evaluation
Knowledge	Comprehend and apply	Analyse and synthesise	Evaluate
30–40%	40–50%	10–20%	10–20%

## Management: Farming N5

### More guidance on evaluation

Evaluation is conducted continuously by means of assignments, case studies, class tests and oral work. A semester mark of at least 40% and a minimum examination mark of 40% are required to pass the instructional offering. The semester mark and the examination mark will be calculated in a ratio of 40:60 to derive the promotion mark.

In the 2023 curriculum, the semester mark consists of three components:

- There is one written test, consisting of 50% of the syllabus. (±70 marks, 1 hour)
- There is one practical assignment, consisting of 80% of the practical component of the syllabus. Theoretical questions may be included. (100 marks, open book, 2–3 working days)
- There is one internal examination, consisting of 80%–100% of syllabus. It includes theoretical and practical questions. (130 marks, 2 hours)

Examination details:

- There is one paper covering all five modules.
- The paper is 3 hours long and out of 200 marks.

### Old and new modules and weightings

#### Old curriculum (1996)

<b>Module 1</b>	The farmer as an entrepreneur	20%
<b>Module 2</b>	Farming strategy	20%
<b>Module 3</b>	Farming business plan for a new farming enterprise or a new branch of an existing farming enterprise	40%
<b>Module 4</b>	Estate planning	10%
<b>Module 5</b>	Insurance	10%
<b>Total</b>		<b>100%</b>

#### New curriculum (2023)

<b>Module 1</b>	The farmer as an entrepreneur	25%
<b>Module 2</b>	Farming strategy	25%
<b>Module 3</b>	Good agricultural practices and technology	25%
<b>Module 4</b>	Estate planning	12,5%
<b>Module 5</b>	Insurance	12,5%
<b>Total</b>		<b>100%</b>

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### Detailed comparison of changes to the wording of the syllabus

The following table sets out the changes made to the curriculum. All new/changed content has been colour coded in red.

Previous curriculum (1996)	New curriculum (2023)
<b>Module 1: The farmer as an entrepreneur</b>	<b>Module 1: The farmer as an entrepreneur</b>
1. Description of an entrepreneur	1.1 Description of an entrepreneur
1.1 Describe the concept entrepreneur.	1.1.1 Define and describe the concept 'entrepreneurship'.
	1.1.2 Name, understand and discuss the two approaches to entrepreneurship.
	1.1.2.1 The entrepreneurial process: <ul style="list-style-type: none"> <li>• Economic innovation</li> <li>• Creation of the organisation</li> <li>• Profit seeking in a market orientated sector</li> </ul>
	1.1.2.2 Personality attributes of an entrepreneur
2. Economic importance of the entrepreneur	1.2 Economic importance of the entrepreneur
2.1 Describe the economic importance of the entrepreneur in farming in South Africa	1.2.1 Understand and discuss: <ul style="list-style-type: none"> <li>• the economic value of entrepreneurship</li> <li>• the promotion and development of entrepreneurship in farming in South Africa</li> <li>• the development of entrepreneurship in farming.</li> </ul>
2.1.1 Develops natural resources	
2.1.2 Creates employment opportunities	
2.1.3 Leaders in production	
2.1.4 Free market system dependent on entrepreneurs	
3. Functions of an entrepreneur	1.3 Functions of an entrepreneur
3.1 Identify the functions of an entrepreneur	1.3.1 Name and discuss the functions of an entrepreneur in a farming organisation.
3.1.1 Combines factors of production	
3.1.2 Determines reward for factors of production	
3.1.3 Plans the enterprise	
3.1.4 Accepts risks	
3.1.5 Extends the enterprise	
4. Reasons for failure of entrepreneurship	1.4 Reasons for failure
4.1 Name and explain the reasons why farming enterprises fail	1.4.1 Name and discuss the reasons for failures in business: <ul style="list-style-type: none"> <li>• Controllable factors</li> <li>• Uncontrollable factors</li> </ul>
4.1.1 Management incompetence	
4.1.2 Lack of experience	
4.1.3 Poor financial control	



## Management: Farming N5

Previous curriculum (1996)	New curriculum (2023)
<p>5. Ways of avoiding pitfalls</p> <p>5.1 Name and describe the reasons why farming enterprises succeed.</p> <p>5.1.1 Prepare a business plan.</p> <p>5.1.2 Know your business in depth.</p> <p>5.1.3 Understand financial statements.</p> <p>5.1.4 Learn to manage people effectively.</p> <p>5.1.5 Entrepreneurial transition.</p> <p>6. Forms of ownership:</p> <p>6.1 Sole trader</p> <p>6.2 Partnership</p> <p>6.3 Company</p> <p>6.4 Closed corporation</p> <p>6.5 Business trust</p> <p>6.1 Describe the establishment and main characteristics of each type of business in brief and compare and contrast the most important advantages and disadvantages</p>	<p>1.5 Ways of avoiding pitfalls</p> <p>1.5.1 Name and describe ways of avoiding pitfalls:</p> <ul style="list-style-type: none"> <li>• Being well equipped with farming technical and farming management skills</li> <li>• Acting to avoid failure by implementing a turn-around plan</li> <li>• Indications of successful turn-around</li> </ul> <p>1.6 Forms of ownership:</p> <ul style="list-style-type: none"> <li>• Sole trader</li> <li>• Partnership</li> <li>• Company</li> <li>• Closed corporation</li> <li>• Business trust</li> </ul> <p>1.6.1 Describe the establishment and main characteristics of each type of business in brief and compare and contrast the most important advantages and disadvantages.</p>
<p><b>Module 2: Farming strategy</b></p> <p>1. Introduction:</p> <p>1.1 Explain what a strategy is and how it differs from normal planning.</p> <p>2. Vision and objectives</p> <p>2.1 Discuss the vision and objectives of farming strategy.</p> <p>2.1.1 Scope of enterprise – farm characteristics</p> <p>2.1.2 Income</p> <p>2.1.3 Risk</p> <p>3. Advantages of and guidelines for a strategic plan</p> <p>3.1 State the advantages of strategic planning and guidelines for developing a strategy.</p>	<p><b>Module 2: Farming strategy</b></p> <p>2.1 Definition</p> <p>2.1.1 Define the concept <i>strategic plan</i>.</p> <p>2.1.2 Explain the characteristics of a strategic plan.</p> <p>2.1.3 Name and explain different strategic planning examples used in agriculture.</p> <p>2.2 Vision and objectives</p> <p>2.2.1 Discuss the vision and objectives of farming strategy.</p> <p>2.3 Advantages of a strategic plan</p> <p>2.3.1 Briefly explain the advantages of a good strategic plan.</p>

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Previous curriculum (1996)	New curriculum (2023)
<p>4. Formulating a farming strategy</p> <p>4.1 Identify and describe the nine steps in the formal strategic planning approach at the farming unit level:</p> <ol style="list-style-type: none"> <li>1. Formulate goals: <ul style="list-style-type: none"> <li>• What do we want?</li> </ul> </li> <li>2. Identify current objectives and strategy: <ul style="list-style-type: none"> <li>• What are we now doing to get what we want?</li> </ul> </li> <li>3. Analyse the environment: <ul style="list-style-type: none"> <li>• What's out there that needs doing?</li> </ul> </li> <li>4. Analyse resources: <ul style="list-style-type: none"> <li>• What are we able to do?</li> </ul> </li> <li>5. Identify strategic opportunities and strengths: <ul style="list-style-type: none"> <li>• What can we do that needs doing?</li> </ul> </li> <li>6. Determine extent of strategic change required: <ul style="list-style-type: none"> <li>• Will continuing to do what we are doing take us to where we want to go?</li> </ul> </li> <li>7. Make strategic decisions: <ul style="list-style-type: none"> <li>• This is what we'll do to get what we want?</li> </ul> </li> <li>8. Implement strategy: <ul style="list-style-type: none"> <li>• Do it.</li> </ul> </li> <li>9. Measure and control success: <ul style="list-style-type: none"> <li>• Check frequently to make sure we're doing it right.</li> </ul> </li> </ol>	<p>2.4 Formulating a farming strategy</p> <p>2.4.1 Identify and discuss the nine steps that need to be followed when drawing up a strategic plan for a farming organisation:</p> <ol style="list-style-type: none"> <li>1. Formulate goals.</li> <li>2. Identify current objectives and strategy.</li> <li>3. Analyse the environment.</li> <li>4. Analyse resources.</li> <li>5. Identify strategic opportunities and strengths.</li> <li>6. Determine extent of strategic change required.</li> <li>7. Make strategic decisions.</li> <li>8. Implement strategy.</li> <li>9. Measure and control success.</li> </ol>
<p>5. Strong and weak points in management ability</p> <p>5.1 Identify and describe strong and weak points in management ability will affect strategy, and how weak points can be remedied:</p> <ul style="list-style-type: none"> <li>• Management of production branches</li> <li>• Mechanical and building aptitude</li> </ul>	<p>2.5 Strengths and weaknesses of a management ability</p> <p>2.5.1 Identify and explain the strengths and weaknesses of a farm manager:</p> <ul style="list-style-type: none"> <li>• Management of production branches</li> <li>• Mechanical and building aptitude</li> <li>• Personnel management</li> <li>• Financial management</li> </ul>

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Previous curriculum (1996)	New curriculum (2023)
<ul style="list-style-type: none"> <li>• Personnel management</li> <li>• Financial management</li> <li>• Purchasing and marketing management</li> <li>• Analytical ability</li> <li>• The ability to make decisions and to take action</li> <li>• Physical and emotional endurance</li> </ul> <p>6. Internal environment (available resources)</p> <p>6.1 Identify and explain the requirements of resources available and needed on the farm:</p> <ul style="list-style-type: none"> <li>• Land</li> <li>• Buildings</li> <li>• Machinery</li> </ul> <p>7. External environment (available resources)</p> <p>7.1 Describe how the external environment will affect strategy</p> <p>7.1.1 Risk considerations</p>	<ul style="list-style-type: none"> <li>• Purchasing and marketing management</li> <li>• Analytical abilities</li> <li>• Decision-making</li> <li>• Physical and emotional endurance</li> </ul> <p>2.6 Internal environment – resources to the farmer</p> <p>2.6.1 Identify and explain the requirements of resources available and needed on the farm:</p> <ul style="list-style-type: none"> <li>• Land <b>available for crop and livestock</b></li> <li>• Buildings</li> <li>• Machinery <b>and equipment</b></li> </ul> <p>2.7 External environment – risks considerations</p> <p>2.7.1 <b>Identify and explain the most common external factors to be considered when drawing up a strategic plan for a farm:</b></p> <ul style="list-style-type: none"> <li>• <b>Technological developments</b></li> <li>• <b>Economic changes</b></li> <li>• <b>Political changes</b></li> </ul>
<p><b>Module 3: Farming business plan for a new farming enterprise or a branch of an existing farming enterprise</b></p> <p>1. Prepare a marketing plan that takes cognisance of the following:</p> <ul style="list-style-type: none"> <li>• Identify and describe possible markets for a new farming enterprise by referring to the prescribed items.</li> </ul> <p>1.1 Importance of a market feasibility study</p> <p>1.1.1 Identify the market position – market segmentation:</p> <ul style="list-style-type: none"> <li>• Identify a target market.</li> <li>• Assess strengths and weaknesses.</li> <li>• Collect data on marketing information.</li> </ul>	<p><b>Module 3: Good agricultural practices and technology</b></p> <p>3.1 <b>Description of good agricultural practices</b></p> <p>3.1.1 <b>Define and describe good agricultural practices</b></p>

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Previous curriculum (1996)	New curriculum (2023)
<p>1.2 Calculate the size of market potential.</p> <p>1.2.1 Describe and calculate the market potential.</p> <p>1.3 Marketing mix:</p> <ul style="list-style-type: none"> <li>• Product description.</li> <li>• Product life cycle</li> </ul> <p>1.3.1 Explain the marketing mix by referring to product and life cycle description.</p> <p>1.4 Pricing for profit:</p> <ul style="list-style-type: none"> <li>• Total cost per unit</li> <li>• Effects of pricing – competition</li> </ul> <p>1.4.1 Explain how pricing for profit is determined.</p>	<p>3.2 Importance of good agricultural practices</p> <p>3.2.1 Discuss the benefits of good agricultural practices.</p> <p>3.2.2 Name and explain different strategic planning examples used in agriculture.</p> <p>3.3 Preparation and implementation of good agricultural practices</p> <p>3.3.1 Demonstrate and understand how good agricultural practices should be implemented.</p> <p>3.3.2 Understand and explain:</p> <ul style="list-style-type: none"> <li>• different services required for workers, for example, personal protection equipment, first aid</li> <li>• hygiene measures</li> <li>• management of natural resources:             <ul style="list-style-type: none"> <li>– Removal of alien plants</li> <li>– Solar power systems</li> <li>– Hydro water systems and water recycling.</li> <li>– Veld conservation</li> <li>– Use of biodegradable chemicals</li> <li>– Recycling and waste management</li> <li>– Composting</li> <li>– Water effluent dams (examples)</li> </ul> </li> </ul> <p>3.4 Conservation tillage</p> <p>3.4.1 Define and explain conservation tillage.</p> <p>3.4.2 Name and discuss different methods of conservation tillage.</p> <p>3.4.3 Briefly discuss the changes in technology, for example, the Fourth Industrial Revolution (new technology in agriculture):</p> <ul style="list-style-type: none"> <li>• Drone</li> <li>• Infrared cameras</li> <li>• Automatic irrigation systems</li> <li>• Climate control devices</li> <li>• Hi-tech smart water greenhouse farming</li> </ul>

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Previous curriculum (1996)	New curriculum (2023)
<p>1.5 Promotion:</p> <ul style="list-style-type: none"> <li>Goals of advertising</li> <li>Personal selling</li> </ul> <p>1.5.1 Identify and describe the goals of advertising and personal sales promotional method.</p> <p>1.6 Place:</p> <ul style="list-style-type: none"> <li>Distribution channels</li> </ul> <p>1.6.1 Review the distribution channels available to farmers.</p> <p>2. Production plan</p> <p>2.1 Prepare a production plan that takes cognisance of the following objectives:</p> <p>2.1.1 Factors that influence the choice of crop branches:</p> <ul style="list-style-type: none"> <li>List the factors that influence the choice of crop branches.</li> </ul> <p>2.2 Decisions about crop production:</p> <ul style="list-style-type: none"> <li>Illustrate methods of arriving at decisions for livestock production.</li> </ul> <p>2.3 Factors that influence the choice of livestock branches:</p> <ul style="list-style-type: none"> <li>Identify the factors that influence the choice of livestock branches.</li> </ul> <p>2.4 Decisions about livestock production:</p> <ul style="list-style-type: none"> <li>Illustrate methods of arriving at decisions for livestock branches.</li> </ul>	<ul style="list-style-type: none"> <li>Hybrid seeds</li> <li>Performance measuring apparatus for sustainable livestock farming</li> <li>Computer and smart device applications</li> <li>Livestock scanning against theft</li> </ul> <p>3.5 System standards and system audits</p> <p>3.5.1 Define and explain what a system standard is.</p> <p>3.5.2 Understand how to prepare farm operations to comply with system standards.</p> <p>3.5.3 Define a system audit.</p> <p>3.5.4 Name and explain the certification of audits, for example, Global GAP, VITA, Animal Welfare and Food Safety.</p>

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Previous curriculum (1996)	New curriculum (2023)
<p>2.5 Influence of buildings, machinery and equipment on production:</p> <ul style="list-style-type: none"> <li>● Outline the influence of buildings, machinery and equipment on production.</li> </ul> <p>3. Prepare a financial plan that takes cognisance of the following objectives:</p> <p>3.1 Financial feasibility study (profit, sales, fixed costs, operating costs, break-even analysis):</p> <ul style="list-style-type: none"> <li>● Total production cost</li> <li>● Contribution per unit</li> <li>● Unit produced for a specified profit goal</li> </ul> <p>3.1.1 Undertake a financial feasibility study for a new farming enterprise or a new branch of existing farming enterprise by referring to the prescribed items.</p> <p>3.1 Sources of financing:</p> <ul style="list-style-type: none"> <li>● List sources of financing available to farmers.</li> </ul> <p>3.2 Creating projected financial statements:</p> <ul style="list-style-type: none"> <li>● Define and create projected financial statements.</li> </ul> <p>3.3 Cash management:</p> <ul style="list-style-type: none"> <li>● Cash budget</li> </ul> <p>3.4.1 Explain the importance of cash management and implement a cash budget.</p> <p>4. Prepare an administration plan that takes cognisance of the following objectives:</p> <p>4.1 Office administration:</p> <ul style="list-style-type: none"> <li>● Accounting records, filing equipment and methods of filing</li> <li>● Office equipment</li> <li>● Inventory control</li> <li>● Security</li> </ul> <p>4.1.1 Outline effective methods for administering an office efficiently.</p>	



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Previous curriculum (1996)	New curriculum (2023)
<p>4.2 Documentation:</p> <ul style="list-style-type: none"> <li>Describe the documentation necessary for effective office administration.</li> </ul> <p>5. Prepare a personnel plan that takes cognisance of the following objectives.</p> <p>5.1 Determining the need for personnel:</p> <ul style="list-style-type: none"> <li>Discuss the methods for determining personnel needs.</li> </ul> <p>5.2 Recruitment:</p> <ul style="list-style-type: none"> <li>Explain how to recruit staff.</li> </ul> <p>5.3 Selection:</p> <ul style="list-style-type: none"> <li>Describe the importance of a contract of employment.</li> </ul> <p>5.4 Contract of employment:</p> <ul style="list-style-type: none"> <li>Discuss the importance of a contract of employment.</li> </ul> <p>5.5 Aspects of training:</p> <ul style="list-style-type: none"> <li>Explain aspects of training suitable for a farm enterprise.</li> </ul> <p>6. Other plans:</p> <ul style="list-style-type: none"> <li>Prepare other plans as needed.</li> </ul> <p><i>Note: The business plan will be presented and evaluated internally.</i></p>	
<p><b>Module 4: Estate planning</b></p> <p>1. Prerequisites for an efficient will:</p> <ul style="list-style-type: none"> <li>Identify and describe the prerequisites for an efficient will.</li> </ul> <p>2. Trusts</p> <p>2.1 Reasons for and advantages of using testamentary trusts:</p> <ul style="list-style-type: none"> <li>List and explain the reasons for and the advantages of using testamentary trusts.</li> </ul> <p>3. Usufruct:</p> <ul style="list-style-type: none"> <li>Discuss the advantages and disadvantages of the practice of usufruct.</li> </ul>	<p><b>Module 4: Estate planning</b></p> <p>4.1 Legal background of wills</p> <p>4.1.1 Distinguish between intestate succession and testate succession.</p> <p>4.2. Prerequisites for an efficient will</p> <p>4.2.1 Briefly explain the prerequisites of an efficient will.</p> <p>4.3 Trusts</p> <p>4.3.1 List and explain the reasons for and the advantages of using testamentary trusts.</p>

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Previous curriculum (1996)	New curriculum (2023)
<p>4. Amalgamation:</p> <ul style="list-style-type: none"> <li>Describe amalgamation.</li> </ul>	<p>4.4 Terminology pertaining to wills and estates</p> <p>4.4.1 Briefly explain the following terms:</p> <ul style="list-style-type: none"> <li>Heir</li> <li>Legatee</li> <li>Conditional bequests</li> <li>Liability clause or modus</li> <li>Substitution</li> <li>Usufruct</li> <li>Fideicommissum</li> <li>Annuities</li> <li>Collation</li> <li>Amalgamation</li> </ul>
<p>5. How an estate is administered:</p> <ul style="list-style-type: none"> <li>Explain how an estate is administered.</li> </ul>	<p>5.5 Compilation of the estate</p> <p>5.5.1 Name the requirements of an effective will.</p> <p>5.5.2 Explain the provision for the surviving spouse/partner and other heirs.</p> <p>5.5.3 Explain continuity of the farming enterprise and the trust.</p> <p>5.5.4 Explain provision for minors including:</p> <ul style="list-style-type: none"> <li>reason for using testamentary trusts</li> <li>selection of administrators</li> <li>contents of a trust clause.</li> </ul>
<p>6. Terminology pertaining to wills and estates:</p> <ul style="list-style-type: none"> <li>List and explain terminology pertaining to wills and estates.</li> </ul>	
<p><b>Module 5: Insurance</b></p> <p>1. Limitations of insurance</p> <p>1.1 List the limitations of insurance for a farming enterprise.</p>	<p><b>Module 5: Insurance</b></p> <p>5.1 Insurance</p> <p>5.1.1 Define insurance.</p> <p>5.1.2 Explain and distinguish between the two types of insurance:</p> <ul style="list-style-type: none"> <li>Short-term insurance</li> <li>Long-term insurance</li> </ul>

## Management: Farming N5

Previous curriculum (1996)	New curriculum (2023)
<p>2. Types of insurance</p> <p>2.1 Short-term insurance</p> <p>2.2 Property and casualty insurance</p> <p>2.3 Principles of insurance:</p> <ul style="list-style-type: none"> <li>Compare and contrast the different types of insurance and explain their value for the farmer.</li> </ul> <p>3. Compulsory insurance</p> <p>3.1 Explain the necessity of compulsory insurance.</p>	<p>5.2 Principles of insurance</p> <p>5.2.1 Discuss the principles of insurance:</p> <ul style="list-style-type: none"> <li>Compensation</li> <li>Surety</li> </ul> <p>5.3. Long-term insurance</p> <p>5.3.1 Name and explain the different types of long-term insurance.</p> <p>5.4 Short-term insurance</p> <p>5.4.1 Name and explain the different types of short-term insurance.</p> <p>5.5 Compulsory insurance</p> <p>5.5.1 Explain the necessity of compulsory insurance.</p>

### TVET First authors

M Mjonono, MM Burger & P Reddy

## Farming Technology and Mechanisation N5 (formerly Maintenance Management: Farming N5)

This document contains important information about the revised curriculum for Farming Technology and Mechanisation N5 for implementation in July 2023.

### Overview of main curriculum changes

- The syllabus for Farming Technology and Mechanisation N5 has been reworked and updated.
- The module topics remain the same but content changes affect four modules:
  - Module 1: Engines
  - Module 2: Drives
  - Module 7: Electricity
  - Module 8: Building techniques
- Both the learning content and the learning objectives have been reworded and more detail has been provided for all sections.
- Topics are organised in the same sequence as in the 1996 syllabus. The following changes have been made:
  - Module 1: Rotary and two-stroke engines have been omitted from the new syllabus.
  - Module 2: Clutches and gearboxes have been omitted from the new syllabus.
  - Module 7: This module now includes some basic wiring and testing.
  - Module 8: This module has the biggest changes. Foundations, floors and walls have been omitted. Ceilings, roofs and roof coverings have been added.
- The aims of the new syllabus are:
  - to give farming students a general background in a diverse range of practical skills which are required on a farm
  - to give students the confidence to tackle any of the myriad of challenges which are part of farm life.

### Structure and weighting changes:

#### Previous syllabus (1996)

Old curriculum modules	Weighting
1. Engines	15
2. Drives	15
3. Brakes	8
4. Wheels, tyres and suspension	7
5. Service, lubrication and maintenance	15
6. Welding	10

## Farming Technology and Mechanisation N5 (formerly Maintenance Management: Farming N5)

Old curriculum modules	Weighting
7. Electricity	15
8. Building technique	15

### New syllabus (2023)

New curriculum modules	Weighting
1. Engines	17
2. Drives	8
3. Brakes	8
4. Wheels, tyres and suspension	13
5. Service, lubrication and maintenance	13
6. Welding	10
7. Electricity	14
8. Building technique	17
	<b>100</b>

### Detailed curriculum changes

The following table sets out the changes made to the curriculum. All new/changed content has been colour coded in **red**.

Previous curriculum (1981)	New curriculum (2023)
<b>Module 1: Engines</b> <i>Students must develop their knowledge on the composition and functioning of engines to enable them to carry out and manage routine servicing, elementary diagnostic procedures and basic repairs.</i>	<b>Module 1: Engines</b> <i>Students must develop their knowledge on the composition and functioning of engines to enable them to carry out and manage routine servicing, elementary diagnostics procedures and basic repairs.</i>
<b>1.1 Basic functioning:</b> <ul style="list-style-type: none"> <li>Explain, with the aid of drawings, the functioning of compression ignition and spark ignition engines.</li> </ul>	<b>1.1 Basic functioning:</b> <ul style="list-style-type: none"> <li>Explain, with the aid of drawings, the functioning of compression ignition and spark ignition engines.</li> </ul>
<b>1.2 Most important parts:</b> <ul style="list-style-type: none"> <li>Discuss, and where necessary explain with the aid of simple drawings, the function, construction and operation of the most important components.</li> </ul>	<b>1.2 Most important parts:</b> <ul style="list-style-type: none"> <li>Discuss and, where necessary, explain with the aid of simple drawings, the function, construction and operation of the most important components.</li> </ul>

## Farming Technology and Mechanisation N5 (formerly Maintenance Management: Farming N5)

Previous curriculum (1981)	New curriculum (2023)
<p><b>1.3</b> Operation of valves:</p> <ul style="list-style-type: none"> <li>• Demonstrate knowledge of valve timing.</li> <li>• Explain valve adjustment.</li> </ul> <p><b>1.4</b> Fuel supply and ignition</p> <p><b>1.4.1</b> Carburettor:</p> <ul style="list-style-type: none"> <li>• Explain a petrol fuel supply line and the operation of the basic carburettor with the aid of simple drawings.</li> </ul> <p><b>1.4.2</b> Diesel fuel line and pump element:</p> <ul style="list-style-type: none"> <li>• Explain a diesel fuel supply line and describe the elementary pumping action with the aid of simple drawings.</li> </ul> <p><b>1.4.3</b> Diesel injector:</p> <ul style="list-style-type: none"> <li>• Explain and demonstrate the operation and testing of a faulty injector.</li> <li>• Describe the consequences of a faulty injector.</li> </ul> <p><b>1.5</b> Lubrication:</p> <ul style="list-style-type: none"> <li>• Explain the purpose, composition and operation of a simple lubrication system.</li> </ul> <p><b>1.6</b> Temperature control:</p> <ul style="list-style-type: none"> <li>• Explain the purpose, composition and operation of a cooling system.</li> </ul> <p><b>1.7</b> Other types of engines:</p> <ul style="list-style-type: none"> <li>• Give an explanation of the working principle of the two-stroke and rotary engines.</li> </ul> <p><b>1.8</b> Elementary diagnostic procedures:</p> <ul style="list-style-type: none"> <li>• Locate, pinpoint and discuss elementary faults of the engine.</li> </ul>	<p><b>1.3</b> Operation of valves</p> <p><b>1.3.1</b> Explain the working of the valves in an engine:</p> <ul style="list-style-type: none"> <li>• Demonstrate knowledge of valve timing.</li> <li>• Explain valve adjustment.</li> </ul> <p><b>1.4</b> Fuel supply and ignition</p> <p><b>1.4.1</b> Carburettor:</p> <ul style="list-style-type: none"> <li>• Explain a petrol fuel supply line and the operation of the basic carburettor with the aid of simple drawings.</li> </ul> <p><b>1.4.2</b> Diesel fuel line and pump element:</p> <ul style="list-style-type: none"> <li>• Explain a diesel fuel supply line and describe the elementary pumping action with the aid of simple drawings.</li> </ul> <p><b>1.4.3</b> Diesel injector:</p> <ul style="list-style-type: none"> <li>• Explain and demonstrate the operation and testing of a faulty injector.</li> <li>• Describe the consequences of a faulty injector.</li> </ul> <p><b>1.5</b> Lubrication:</p> <ul style="list-style-type: none"> <li>• Explain the purpose, composition and operation of a simple lubrication system.</li> </ul> <p><b>1.6</b> Cooling system:</p> <ul style="list-style-type: none"> <li>• Explain the purpose, composition and operation of a cooling system.</li> </ul> <p><b>1.7</b> Elementary diagnostic procedures:</p> <ul style="list-style-type: none"> <li>• Locate, pinpoint and discuss elementary faults of the engine.</li> </ul>

## Farming Technology and Mechanisation N5 (formerly Maintenance Management: Farming N5)

Previous curriculum (1981)	New curriculum (2023)
<p><b>Module 2: Drives</b></p> <p><i>Students must expand their knowledge of the composition and functioning of drives to enable them to carry out and manage routine servicing, elementary diagnostic procedures and basic repairs (transmission of power from the flywheel to the wheels).</i></p> <p><b>2.1 Clutches:</b></p> <ul style="list-style-type: none"> <li>Explain and demonstrate the function, composition and operation of the clutch.</li> </ul> <p><b>2.2 Gear boxes:</b></p> <ul style="list-style-type: none"> <li>Explain and demonstrate the function, composition and operation of the gearbox.</li> </ul> <p><b>2.3 Final drives:</b></p> <ul style="list-style-type: none"> <li>Explain and demonstrate the function, composition and working of the final drives.</li> </ul> <p><b>2.4 Elementary diagnostic procedures:</b></p> <ul style="list-style-type: none"> <li>Locate, pinpoint and discuss elementary driving faults.</li> </ul>	<p><b>Module 2: Drives</b></p> <p><i>Students must expand their knowledge of the composition and functioning of drives to enable them to carry out and manage routine servicing, elementary diagnostic procedures and basic repairs (transmission of power from the flywheel to the wheels).</i></p> <p><b>2.1 Final drives:</b></p> <ul style="list-style-type: none"> <li>Explain and demonstrate the function, components and operation of the final drives.</li> </ul> <p><b>2.2 Elementary diagnostic procedures:</b></p> <ul style="list-style-type: none"> <li>Locate, pinpoint and discuss elementary faults of the drive train.</li> </ul>
<p><b>Module 3: Brakes</b></p> <p><i>Students must expand their knowledge of the composition and functioning of brakes to enable them to carry out and manage routine servicing, elementary diagnostic procedures and basic repairs.</i></p> <p><b>3.1 Elementary hydraulics:</b></p> <ul style="list-style-type: none"> <li>Explain and illustrate elementary hydraulic principles.</li> </ul> <p><b>3.2 The layout, functioning and maintenance of a simple hydraulic braking system:</b></p> <ul style="list-style-type: none"> <li>Discuss and demonstrate knowledge of the operation.</li> </ul>	<p><b>Module 3: Brakes</b></p> <p><i>Students must expand their knowledge of the composition and functioning of brakes to enable them to carry out and manage routine servicing, elementary diagnostic procedures and basic repairs.</i></p> <p><b>3.1 Elementary hydraulics:</b></p> <ul style="list-style-type: none"> <li>Explain and illustrate elementary hydraulic principles.</li> </ul> <p><b>3.2 The layout, functioning and maintenance of a simple hydraulic braking system:</b></p> <ul style="list-style-type: none"> <li>Discuss and demonstrate knowledge of the operation.</li> </ul>

## Farming Technology and Mechanisation N5 (formerly Maintenance Management: Farming N5)

Previous curriculum (1981)	New curriculum (2023)
<p><b>3.3</b> Alternative braking systems:</p> <ul style="list-style-type: none"> <li>Evaluate other braking systems, such as air, vacuum and magnetic braking systems, and explain the operation thereof with the aid of drawings.</li> </ul> <p><b>3.4</b> Elementary diagnostic procedures:</p> <ul style="list-style-type: none"> <li>Give an explanation of elementary diagnostic procedures.</li> </ul>	<p><b>3.3</b> Alternative braking system:</p> <ul style="list-style-type: none"> <li>Evaluate other braking systems, such as air, vacuum and magnetic braking systems, and explain the operation thereof with the aid of sketches.</li> </ul> <p><b>3.4</b> Elementary diagnostic procedures:</p> <ul style="list-style-type: none"> <li>Explain elementary diagnostic procedures.</li> </ul>
<p><b>Module 4: Wheels, tyres and suspension</b></p> <p><i>Students must expand their knowledge of the composition and functioning of wheels, tires and suspension to enable them to carry out and manage routine servicing, elementary diagnostic procedures and basic repairs.</i></p> <p><b>4.1</b> Types of rims:</p> <ul style="list-style-type: none"> <li>Identify the various types of rims and be able to discuss their uses.</li> </ul> <p><b>4.2</b> Types of tyres and the utilisation of each type:</p> <ul style="list-style-type: none"> <li>Discuss the various types of tyres with regard to their application and maintenance.</li> </ul> <p><b>4.3</b> Suspension system:</p> <ul style="list-style-type: none"> <li>Discuss the suspension system and related components.</li> </ul> <p><b>4.4</b> Elementary diagnostic procedures:</p> <ul style="list-style-type: none"> <li>Give an explanation of elementary diagnostic procedures.</li> </ul>	<p><b>Module 4: Wheels, tyres and suspension</b></p> <p><i>Students must expand their knowledge of the composition and functioning of wheels, tires and suspension to enable them to carry out and manage routine servicing, elementary diagnostic procedures and basic repairs.</i></p> <p><b>4.1</b> Types of rims:</p> <ul style="list-style-type: none"> <li>Identify the various types of rims and be able to discuss their uses.</li> </ul> <p><b>4.2</b> Types of tyres and the utilisation of each type:</p> <ul style="list-style-type: none"> <li>Discuss the various types of tyres with regard to their application and maintenance.</li> </ul> <p><b>4.3</b> Suspension system:</p> <ul style="list-style-type: none"> <li>Discuss the suspension system and related components.</li> </ul> <p><b>4.4</b> Elementary diagnostic procedures:</p> <ul style="list-style-type: none"> <li>Explain elementary diagnostic procedures.</li> </ul>
<p><b>Module 5: Service, lubrication and maintenance</b></p> <p><i>Students must acquire the necessary knowledge and maintenance skills to service and lubricate vehicles.</i></p> <p><b>5.1</b> Types of lubricants:</p> <ul style="list-style-type: none"> <li>Discuss the uses of different types of lubricants.</li> </ul>	<p><b>Module 5: Service, lubrication and maintenance</b></p> <p><i>Students must acquire the necessary knowledge and maintenance skills to service and lubricate vehicles.</i></p> <p><b>5.1</b> Types of lubricants:</p> <ul style="list-style-type: none"> <li>Discuss the uses of different types of lubricants.</li> </ul>



## Farming Technology and Mechanisation N5 (formerly Maintenance Management: Farming N5)

Previous curriculum (1981)	New curriculum (2023)
<p><b>5.2</b> Filters (fuel, oil and air):</p> <ul style="list-style-type: none"> <li>Describe and demonstrate ability to replace different filters.</li> </ul> <p><b>5.3</b> Engine oils:</p> <ul style="list-style-type: none"> <li>Consider the engine oils with regard to pollution and replacement.</li> </ul> <p><b>5.4</b> Other service points:</p> <ul style="list-style-type: none"> <li>Identify the important service points, discuss check-ups and adjustments, and indicate possible repairs.</li> </ul> <p><b>5.5</b> Record keeping:</p> <ul style="list-style-type: none"> <li>Discuss and apply the need for the recording of general services and maintenance of vehicles.</li> </ul>	<p><b>5.2</b> Filters (fuel, oil and air):</p> <ul style="list-style-type: none"> <li>Describe and demonstrate ability to replace different filters.</li> </ul> <p><b>5.3</b> Engine oils:</p> <ul style="list-style-type: none"> <li>Consider the engine oils with regard to pollution and replacement.</li> </ul> <p><b>5.4</b> Other service points:</p> <ul style="list-style-type: none"> <li>Identify the important service points, discuss check-ups and adjustments, and indicate possible repairs.</li> </ul> <p><b>5.5</b> Record keeping:</p> <ul style="list-style-type: none"> <li>Discuss and apply the need for the recording of general services and maintenance vehicles.</li> </ul>
<p><b>Module 6: Welding</b></p> <p><i>Students must expand their knowledge and skills pertaining to welding techniques.</i></p> <p><b>6.1</b> Applications of gas welding, gas soldering and cutting</p> <p><b>6.1.1</b> Gas welding:</p> <ul style="list-style-type: none"> <li>Discuss and demonstrate gas welding processes.</li> </ul> <p><b>6.1.2</b> Gas soldering:</p> <ul style="list-style-type: none"> <li>Discuss and demonstrate gas soldering processes.</li> </ul> <p><b>6.1.3</b> Cutting:</p> <ul style="list-style-type: none"> <li>Discuss and demonstrate gas cutting processes.</li> </ul> <p><b>6.2</b> Arc welding applications.</p> <ul style="list-style-type: none"> <li>Discuss and demonstrate arc welding processes.</li> </ul> <p><b>6.3</b> Welding flaws and problems:</p> <ul style="list-style-type: none"> <li>Discuss, diagnose and pinpoint and welding flaws and problems.</li> </ul>	<p><b>Module 6: Welding</b></p> <p><i>Students must expand their knowledge and skills pertaining to welding techniques.</i></p> <p><b>6.1</b> Application of gas welding, gas soldering and cutting</p> <p><b>6.1.1</b> Gas welding:</p> <ul style="list-style-type: none"> <li>Discuss and demonstrate gas welding processes.</li> </ul> <p><b>6.1.2</b> Gas soldering:</p> <ul style="list-style-type: none"> <li>Discuss and demonstrate gas soldering processes.</li> </ul> <p><b>6.1.3</b> Cutting:</p> <ul style="list-style-type: none"> <li>Discuss and demonstrate gas cutting processes.</li> </ul> <p><b>6.2</b> Arc welding applications:</p> <ul style="list-style-type: none"> <li>Discuss and demonstrate arc welding processes.</li> </ul> <p><b>6.3</b> Welding flaws and problems:</p> <ul style="list-style-type: none"> <li>Discuss, diagnose and pinpoint welding flaws and problems.</li> </ul>

## Farming Technology and Mechanisation N5 (formerly Maintenance Management: Farming N5)

Previous curriculum (1981)	New curriculum (2023)
<b>Module 7: Electricity</b> <i>Students must expand their knowledge and skills to enable them to carry out elementary diagnostic procedures and basic maintenance.</i> <p><b>7.1</b> Circuits (alternating current and direct current):</p> <ul style="list-style-type: none"> <li>• Draw simple circuits and meaningfully discuss these circuits.</li> </ul> <p><b>7.2</b> Principles of generators, alternators, motors and transformers:</p> <ul style="list-style-type: none"> <li>• Perform connections, tests and provide maintenance on the mentioned electrical units.</li> <li>• Describe possibilities for applications.</li> </ul> <p><b>7.3</b> Electricity supply: requirements and costs:</p> <ul style="list-style-type: none"> <li>• Discuss the requirements, supply and costs of electricity on the farm.</li> <li>• Do simple calculations and tests.</li> </ul> <p><b>7.4.</b> Testing equipment (applications):</p> <ul style="list-style-type: none"> <li>• Use electrical testing apparatus effectively and safely.</li> </ul> <p><b>7.5</b> Batteries:</p> <ul style="list-style-type: none"> <li>• Maintain, test, connect and charge batteries.</li> </ul>	<b>Module 7: Electricity</b> <i>Students must expand their knowledge and skills to enable them to carry out elementary diagnostic procedures and basic maintenance.</i> <p><b>7.1</b> Circuits (alternating current and direct current):</p> <ul style="list-style-type: none"> <li>• Draw simple circuits and meaningfully discuss these circuits.</li> </ul> <p><b>7.2</b> Principles of generators, alternators, motors and transformers:</p> <ul style="list-style-type: none"> <li>• Perform connections, tests and provide maintenance on the mentioned electrical units.</li> <li>• Describe possibilities for applications.</li> </ul> <p><b>7.3</b> Electricity supply requirements and costs:</p> <ul style="list-style-type: none"> <li>• Discuss the requirements, supply and costs of electricity on the farm.</li> <li>• Do simple calculations and tests.</li> </ul> <p><b>7.4</b> Testing equipment:</p> <ul style="list-style-type: none"> <li>• Use electrical testing apparatus effectively and safely.</li> </ul> <p><b>7.5</b> Batteries:</p> <ul style="list-style-type: none"> <li>• Maintain, test, connect and charge batteries.</li> </ul> <p><b>7.6</b> Electrical wiring</p> <p><b>7.6.1</b> Perform connection and tests of basic electrical wiring:</p> <ul style="list-style-type: none"> <li>• Produce a basic wiring diagrams of distribution boards (DB) that includes components.</li> <li>• Identify electrical earthing equipment.</li> <li>• Discuss importance of electrical earthing equipment.</li> </ul>
<b>Module 8: Building techniques</b> <b>8.1</b> Simple plans and specifications	<b>Module 8: Building techniques</b> <b>8.1</b> Simple plans and specifications

## Farming Technology and Mechanisation N5 (formerly Maintenance Management: Farming N5)

Previous curriculum (1981)	New curriculum (2023)
<p><b>8.1.1</b> Topographical plans:</p> <ul style="list-style-type: none"> <li>Sketch, draw and interpret topographical plans.</li> </ul> <p><b>8.1.2</b> Top view (plans):</p> <ul style="list-style-type: none"> <li>Illustrate and explain the top view of a plan.</li> </ul> <p><b>8.1.3</b> Specifications:</p> <ul style="list-style-type: none"> <li>Interpret and discuss specifications of a plan.</li> </ul> <p><b>8.1.4</b> Scales:</p> <ul style="list-style-type: none"> <li>Interpret and apply scales.</li> </ul> <p><b>8.2</b> Building facets:</p> <ul style="list-style-type: none"> <li>Discuss the basic facets and to demonstrate simple building work.</li> </ul> <p><b>8.2.1</b> Foundations and floors:</p> <ul style="list-style-type: none"> <li>Explain the different types including making sectional sketches of the same.</li> </ul> <p><b>8.2.2</b> Walls with doors and windows:</p> <ul style="list-style-type: none"> <li>Explain and demonstrate the building of walls with windows and doors.</li> </ul> <p><b>8.2.4</b> Finishing of the site:</p> <ul style="list-style-type: none"> <li>Describe the preparation and the clearance of the site.</li> </ul> <p><b>8.2.3</b> Plumbing:</p> <ul style="list-style-type: none"> <li>Explain and demonstrate the fixing of plumbing equipment.</li> </ul> <p><b>8.5.2</b> Water supply:</p> <ul style="list-style-type: none"> <li>Give an explanation of the requirements for water supply on the farm.</li> </ul>	<p><b>8.1.1</b> Topographical plans:</p> <ul style="list-style-type: none"> <li>Sketch, draw and interpret topographical plans.</li> </ul> <p><b>8.1.2</b> Top view plans:</p> <ul style="list-style-type: none"> <li>Illustrate and explain the top view of a plan.</li> </ul> <p><b>8.1.3</b> Specifications:</p> <ul style="list-style-type: none"> <li>Interpret and discuss specifications of a plan.</li> </ul> <p><b>8.1.4</b> Scales:</p> <ul style="list-style-type: none"> <li>Interpret and apply scales.</li> </ul> <p><b>8.2</b> Building facets:</p> <ul style="list-style-type: none"> <li>Discuss the basic facets and demonstrate simple building work.</li> </ul> <p><b>8.2.1</b> Ceilings:</p> <ul style="list-style-type: none"> <li>Compare the different types of materials used.</li> <li>Explain the method of fixing.</li> <li>Name the advantages and disadvantages of each type.</li> </ul> <p><b>8.2.2</b> Finishing of the site:</p> <ul style="list-style-type: none"> <li>Describe the preparation and the clearance of the site.</li> </ul> <p><b>8.2.2</b> Plumbing and water supply:</p> <ul style="list-style-type: none"> <li>Explain and demonstrate the fixing of plumbing equipment.</li> <li>Give an explanation and perform calculations of the requirements for water supply on the farm.</li> <li>Explain the layout and working of a simple sewerage system with the aid of sketches.</li> </ul>

## Farming Technology and Mechanisation N5 (formerly Maintenance Management: Farming N5)

Previous curriculum (1981)	New curriculum (2023)
<p><b>8.5.3</b> Sewerage:</p> <ul style="list-style-type: none"> <li>Explain the layout and working of a simple sewerage system with the aid of sketches.</li> </ul>	<p><b>8.3</b> Building facets</p> <p><b>8.3</b> Roofs and roof covers</p> <ul style="list-style-type: none"> <li>Name and discuss the different materials for roof coverings and different types of roofs.</li> <li>Draw freehand sketches of different types of woodwork used in roofs.</li> <li>Draw freehand sketches of different types of eaves used in roofs.</li> <li>Label the different components/parts in eaves.</li> <li>Name and explain the method of fixing different roof coverings.</li> <li>Explain the sequence of erecting a roof structure for a gable roof.</li> </ul>
<p><b>8.3</b> Basic knowledge of quantity and cost determinations:</p> <ul style="list-style-type: none"> <li>Measure the quantities and calculate the costs of the material for smaller building projects.</li> </ul>	<p><b>8.4</b> Basic knowledge of quantity and cost determinations:</p> <ul style="list-style-type: none"> <li>Measure the quantities and calculate the costs of the material for smaller building projects.</li> </ul>
<p><b>8.4</b> Alternative building systems:</p> <ul style="list-style-type: none"> <li>Discuss alternative building systems.</li> </ul>	<p><b>8.5</b> Alternative building systems/methods:</p> <ul style="list-style-type: none"> <li>Discuss alternative building systems/methods.</li> </ul>
<p><b>8.5</b> Basic knowledge of electrical works, sewerage and water supply</p>	<p><b>8.6</b> Basic knowledge of electrical works</p>
<p><b>8.5.1</b> Lighting:</p> <ul style="list-style-type: none"> <li>Give an overview of the requirements for electrical works.</li> </ul>	<p><b>8.6.1</b> Lighting:</p> <ul style="list-style-type: none"> <li>Give an overview of the requirements for electrical works.</li> </ul>

## Farming Technology and Mechanisation N5 (formerly Maintenance Management: Farming N5)

### Features and benefits of *TVET First Farming Technology and Mechanisation N5*

*TVET First* is the ideal textbook to guide Farming Technology and Mechanisation students towards success in their studies. This high-quality Student's Book is packed with features that take students through the complete curriculum and prepare them for examination success. Features of the textbook include:

- clear and simple writing with explanations of new terminology
- a simple, step-by-step approach to problem solving
- plenty of varied activities to consolidate students' knowledge and prepare them for examinations
- lots of photographs and clear diagrams to make learning easier
- case studies that link the content and activities to real-life situations
- summaries at the end of each module to help with revision
- summative assessments modelled on examinations to provide helpful examination practice.

### ***TVET First* author**

Sparrow Consulting

## Financial Management: Farming N5

This document contains important information about the revised curriculum for Financial Management: Farming N5 for implementation in July 2023.

### Overview of main curriculum changes

- The Financial Management: Farming N5 syllabus has been *revised, restructured and updated*.
- Most of the *learning objectives have been renumbered* as content moved from the old N4 syllabus to the new N5 syllabus, and content has also moved around within the N5 syllabus.
- Most of the content from the old N5 syllabus (Module 1) on journals has moved to the new N4 syllabus. The only section that has remained in the new N5 syllabus is the section on the **Cash Book and bank reconciliation** (1.5 Bank reconciliation). Journals are not dealt with in N5.
- The **Cash Book and bank reconciliation** is now dealt with in Module 3 of the new N5 syllabus. This module is a combination of content from the old N5 syllabus:
  - Section 3.1 in the new syllabus comes from the old N5 syllabus, Module 3: Farming Management Information Systems: Double entry system – Ledger accounts (3.5 Cash Book and ledger accounts.).
  - Section 3.2 comes from the old N5 syllabus, Module 1: Farming Management Information Systems: Journals (1.5 Bank reconciliation).
- Content on **annual financial statements** from the old N4 syllabus (Module 4) has moved to the new N5 syllabus (Module 1). This module builds on knowledge that the students acquired in N4 (new syllabus). Students are required to use what they learnt in N4 to compile the Balance Sheet and Income Statement in N5.
- The weighting for **Module 5, Capital requirements, forms and sources** (Module 4 in the old N5 syllabus) has changed from 25% to only 5%. This will impact how much time is spent teaching this module and how it is tested in ICASS.
- The weighting for **Module 6, Financial policy and farming enterprise** (Module 5 in the old N5 syllabus) has changed from 25% to only 5%. This will impact how much time is spent teaching this module and how it is tested in ICASS.
- The new syllabus requires that an answer book with templates be provided for all assessments, including the national examination. To this end, our course includes a workbook that has been developed to use in conjunction with the Student's Book.
- The new syllabus provides templates in the annexures for the following:
  - Balance Sheet and Income Statement
  - The Cash Book and Bank Reconciliation Statement
  - A partial budget
  - A projected cash flow budget
- The new syllabus provides a list of formulas in the annexures. These should be used in Modules 2 and 3 for various calculations.

## Financial Management: Farming N5

### Changes to examination assessment

Written assessment must include various cognitive skills listed in Bloom's taxonomy. The table that follows lists the skills that apply in the 1996 syllabus, along with the weighting accorded to each.

#### Old standards (1996)

Recall	Application	Analysis	Evaluation
30–40%	40–50%	10–20%	10–20%

The table that follows lists the skills that apply in the 2023 syllabus, along with the weighting accorded to each. These are unchanged.

#### New standards (2023)

Recall	Application	Analysis	Evaluation
Knowledge	Comprehend and apply	Analyse and synthesise	Evaluate
30–40%	40–50%	10–20%	10–20%

### More guidance on evaluation

Evaluation is conducted continuously by means of assignments, case studies, class tests and oral work. A semester mark of at least 40% and a minimum examination mark of 40% are required to pass the instructional offering. The semester mark and the examination mark will be calculated in a ratio of 40:60 to derive the promotion mark.

In the 2023 curriculum, the semester mark consists of three components:

- There is one written test, consisting of 50% of the syllabus. ( $\pm$  70 marks, 1 hour)
- There is one practical assignment, consisting of 80% of the practical component of the syllabus. Theoretical questions may be included. (100 marks, open book, 2–3 working days)
- There is one Internal examination, consisting of 80%–100% of the syllabus, including theoretical and practical questions. (130 marks, 2 hours)

The examination in Financial Management: Farming N5 will be conducted as follows:

- There is one paper covering all six modules.
- The paper is 3 hours long and out of 200 marks.
- All templates will be provided.
- Students require a calculator for the examination.

**Answer books** must be provided for all these assessments, including the national examination.

## Financial Management: Farming N5

### New modules' mark allocation and weightings

Module	Mark allocation	Weighting
Module 1: Farming management information system: Annual financial statements	50 marks	25%
Module 2: Farming management information system: Analysis and interpretation of financial statements	50 marks	25%
Module 3: Farming management information system: Cash Book and bank reconciliation	40 marks	20%
Module 4: Financial planning: Auxiliary budgets	40 marks	20%
Module 5: Capital requirements, forms and sources	10 marks	5%
Module 6: Financial policy of farming enterprise	10 marks	5%

### Detailed comparison of changes to the wording of the syllabus

The following table sets out the changes made to the curriculum. All new/changed content has been colour coded in red.

Previous curriculum	New curriculum (2023)
<p><i>The content in the new syllabus (Module 1) comes from the old N4 syllabus, Module 4, and builds on what students learnt in N4 (new syllabus).</i></p>	<p><b>Module 1: Farming management information system: Annual financial statements</b></p> <p>1.1 Balance Sheet</p> <p>1.1.1 Description of the concept</p> <p>1.1.2 Grouping and arrangement of assets and liabilities in the farm Balance Sheet</p> <p>1.1.3 Values at which the assets are included in the farm Balance Sheet</p> <p>1.1.4 Form of the Balance Sheet</p> <p>1.1.5 Additional explanation of concepts</p> <p>1.2 Farming Income Statement</p> <p>1.2.1 Information contained in the Income Statement</p> <p>1.2.2 Description of concepts</p> <p>1.2.3 Form of the Income Statement</p>



## Financial Management: Farming N5

Previous curriculum	New curriculum (2023)
<b>Module 1: Farming management information systems: Journals</b> 1.1 Receiving and payment journals 1.2 Debtors journals 1.3 Creditors journals 1.4 Wages journals 1.5 Bank reconciliation	<i>Module 1 of the old N5 syllabus was moved to the new N4 syllabus, except for 1.5 Bank reconciliation, which now appears in Module 3 of the new N5 syllabus (see Module 3: Farming management information system: Cash Book and bank reconciliation)</i>
<b>Module 2: Farming management information system: Analysis and interpretation</b> 2.1 Growth in net worth and the reconciliation of the net worth of two consecutive farm balance sheets 2.2 Financing cost component in instalment sale and lease agreements (with the aid of financial pocket computers) 2.3 Types of analysis 2.4 Performance evaluation norms 2.5 Farm Balance Sheet analyses 2.5.1 Solvency criteria  2.5.2 Liquidity criteria  2.5.3 Net worth criteria  2.6 Income statement analysis 2.6.1 Gross production value 2.6.2 Production, marketing and administrative costs  2.6.3 Relationship between the GPV and the production, marketing, and administrative costs 2.6.4 Net farm income	<b>Module 2: Farming management information system: Analysis and interpretation of financial statements</b> 2.1 Growth in net worth and the reconciliation of the net worth of two consecutive farm balance sheets 2.2 Financing cost component in instalment sale and lease agreements  2.3 Types of analysis 2.4 Performance evaluation 2.5 Farm Balance Sheet analysis 2.5.1 Solvency: <ul style="list-style-type: none"> <li>• Net capital ratio</li> <li>• Gearing ratio</li> <li>• Debt ratio</li> </ul> 2.5.2 Liquidity: <ul style="list-style-type: none"> <li>• Current ratio</li> <li>• Acid test ratio</li> </ul> 2.5.3 Net worth: <ul style="list-style-type: none"> <li>• Growth in net worth</li> </ul> 2.6 Income Statement analysis 2.6.1 Relative contribution of the gross production value 2.6.2 Relative contribution of the production-, marketing- and admin costs 2.6.3 Relationship between the GPV and the production, marketing and admin costs: <ul style="list-style-type: none"> <li>• Input/output ratios</li> </ul> 2.6.4 Net farming income

## Financial Management: Farming N5

Previous curriculum	New curriculum (2023)
2.6.5 Remuneration to providers of foreign capital	2.6.5 Remuneration to providers of foreign capital: <ul style="list-style-type: none"> <li>• GPV</li> <li>• NFI</li> </ul>
2.6.6 Farm profit	2.6.6 Farm profit
<p><i>This content in the new syllabus (Module 3, Unit 3.1) comes from the old N5 syllabus, Module 3: Farming management information systems: Double entry system – Ledger accounts (3.5 Cash Book and ledger accounts.) Note that the balance of the content for this module was moved to the new N4 syllabus.</i></p> <p><i>This content in the New curriculum (Module 3, Unit 3.2) comes from the old N5 syllabus, Module 1: Farming management information systems: Journals (1.5 Bank reconciliation)</i></p>	<p><b>Module 3: Farming management information system: Cash Book and bank reconciliation</b></p> <p>3.1 Cash Book</p> <p>3.1.1 Purpose of the Cash Book</p> <p>3.1.2 The structure of the Cash Book, namely the different columns as well as debit and credit side (Annexure C in the syllabus)</p> <p>3.2 Bank reconciliation</p> <p>3.2.1 The purpose of a bank reconciliation (Annexure D in the syllabus)</p> <p>3.2.2 Compare the bank statement with the Cash Book and identify and record the differences.</p> <p>3.2.3 Record and reconcile entries in the Cash Book, draw up a bank reconciliation statement and compare the statement with the balance shown in the Cash Book.</p>
<p><b>Module 3: Financial planning: Auxiliary budgets</b></p> <p>3.1 Introduction</p> <p>3.2 Auxiliary budgets</p> <p>3.2.1 Branch (enterprise) budgets</p> <p>3.2.2 Partial budgets</p> <p>3.2.3 Break-even budgets</p> <p>3.2.4 Capital budgets</p> <p>3.2.5 Cash flow budget</p>	<p><b>Module 4: Financial planning: Auxiliary budgets</b></p> <p>4.1 Introduction</p> <p>4.2 Auxiliary budgets</p> <p>4.2.1 The importance of auxiliary budgets</p> <p>4.2.2 The different auxiliary budgets that may be of value in drawing up an integrated farm budget.</p> <p>4.2.3 Branch (enterprise) budgets</p> <p>4.2.4 Partial budgets</p> <p>4.2.5 Break-even budgets</p> <p>4.2.6 Capital budgets</p> <p>4.2.7 Cash flow budget</p>

## Financial Management: Farming N5

Previous curriculum	New curriculum (2023)
<b>Module 4: Capital requirements, forms and sources</b>	<b>Module 5: Capital requirements, forms and sources</b>
4.1 Introduction	5.1 Introduction
4.2 Particular circumstances that influence the financing of farming enterprises	5.2 Particular circumstances that influence the financing of farming enterprises
4.2.1 Variable climatic conditions	5.2.1 Variable climatic conditions
4.2.2 Relatively inelastic demand for agricultural products	5.2.2 Relatively inelastic demand for agricultural products
4.2.3 Inability of agricultural production to adapt to changes in demand	5.2.3 Inability of agricultural production to adapt to changes in demand
4.2.4 Structural changes in agriculture require time.	5.2.4 Structural changes in agriculture require time.
4.2.5 Seasonal nature of agricultural production	5.2.5 Seasonal nature of agricultural production
4.2.6 Numerous small production units	5.2.6 Numerous small production units
4.2.7 Land is the most important capital asset.	5.2.7 Land is the most important capital asset.
4.2.8 Movable assets and agricultural products are nondurable and dispersed.	5.2.8 Movable assets and agricultural products are nondurable and dispersed.
4.2.9 Structural shortcomings in agriculture	5.2.9 Structural shortcomings in agriculture
4.3 Capital requirements of farming enterprises	5.3 Capital requirements of a farming enterprise
4.3.1 Nature of the capital requirements of a farming enterprise in general	5.3.1 Nature of the capital requirements of a farming enterprise in general
4.3.2 Factors that influence the extent of the capital requirements of a farming enterprise	5.3.2 Factors that influence the extent of the capital requirements of a farming enterprise.
4.4 Forms of capital available to a farming enterprise	5.4 Forms of capital available to a farming enterprise
4.4.1 Own capital	• Own capital
4.4.2 Loan capital	• Loan capital
4.5 Sources of own capital for a farming enterprise	5.5 Sources of own capital for a farming enterprise
4.5.1 Bequests donations, and additional earnings	5.5.1 Bequests donations, and additional earnings
4.5.2 Profits from the farm	5.5.2 Profits from the farm
4.5.3 Savings at the expense of household spending	5.5.3 Savings at the expense of household spending
4.5.4 Proper use of labour	5.5.4 Proper use of labour
4.5.5 Miscellaneous	5.5.5 Miscellaneous

## Financial Management: Farming N5

Previous curriculum	New curriculum (2023)
<p>4.6 Sources of loan capital for a farming enterprise</p> <p>4.6.1 The Land Bank</p> <p>4.6.2 Agricultural co-operatives</p> <p>4.6.3 Other banking institutions</p> <p>4.6.4 Insurance companies</p> <p>4.6.5 Other financial institutions</p> <p>4.6.6 Trade creditors (supplier's credit)</p> <p>4.6.7 Private persons</p> <p>4.6.8 Relative importance of different sources of loan capital</p>	<p>5.6 Sources of loan capital for a farming enterprise</p> <p>5.6.1 The Land Bank</p> <p>5.6.2 Agricultural co-operatives</p> <p>5.6.3 Other banking institutions</p> <p>5.6.4 Insurance companies</p> <p>5.6.5 Other financial institutions</p> <p>5.6.6 Trade creditors (supplier's credit)</p> <p>5.6.7 Private persons</p> <p>5.6.8 Relative importance of different sources of loan capital</p>
<p><b>Module 5: Financing policy of a farming enterprise</b></p> <p>5.1 Establishment and implementation of a sound financing policy</p> <p>5.1.1 General</p> <p>5.1.2 Knowledge of the capital requirements</p> <p>5.1.3 Development of resilience or maintenance of liquidity</p> <p>5.1.4 Advantageous financing</p> <p>5.2 Obtaining credit</p> <p>5.2.1 General</p> <p>5.2.2 Credit evaluation</p> <p>5.2.3 Repayment ability</p> <p>5.2.4 Security</p> <p>5.2.5 Risk</p> <p>5.2.6 General rules when obtaining or granting credit</p>	<p><b>Module 6: Financial policy of farming enterprise</b></p> <p>6.1 Establishment and implementation of a sound financing policy</p> <p>6.1.1 General</p> <p>6.1.2 Knowledge of the capital requirements</p> <p>6.1.3 Development of resilience or maintenance of liquidity</p> <p>6.1.4 Advantageous financing</p> <p>6.2 Obtaining credit</p> <p>6.2.1 General</p> <p>6.2.2 Credit evaluation</p> <p>6.2.3 Repayment ability</p> <p>6.2.4 Security</p> <p>6.2.5 Risk</p> <p>6.2.6 General rules when obtaining or granting credit</p>

**TVET first authors**

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## Plant and Animal Production N5

This document contains important information about the brand new curriculum for Plant and Animal Production N5 for implementation in July 2023. This is a new subject that was introduced into the NATED (Report 191) Farming Management programme for the first time in 2023.

### Examination assessment

Written assessment must include various cognitive skills listed in Bloom's taxonomy. The table that follows lists the skills that apply in the new 2023 syllabus, along with the weighting accorded to each.

### Standards (2023)

Recall	Application	Analysis	Evaluation
Knowledge	Comprehend and apply	Analyse and synthesise	Evaluate
30–40%	40–50%	10–20%	10–20%

### More guidance on evaluation

Evaluation is conducted continuously by means of assignments, case studies, class tests and oral work. A semester mark of at least 40% and a minimum examination mark of 40% are required to pass the instructional offering. The semester mark and the examination mark will be calculated in a ratio of 40:60 to derive the promotion mark.

In the 2023 curriculum, the semester mark consists of three components:

- There is one written test, consisting of 50% of the syllabus (±70 marks, 1 hour)
- There is one practical assignment, consisting of 80% of the practical component of the syllabus. Theoretical questions may be included. (100 marks, open book, 2–3 working days)
- There is one internal examination, consisting of 80%–100% of syllabus, including theoretical and practical questions. (130 marks, 2 hours)

An external examination is written at the end of the semester. The question paper is set, marked and moderated externally:

- There is one paper covering all three modules.
- The paper is 3 hours long and out of 200 marks.

### Modules and weightings

#### Curriculum (2023)

Module 1	Soils and their components	±65 marks	±33,3%
Module 2	Plant production principles	±65 marks	±33,3%
Module 3	Animal production	±65 marks	±33,3%
<b>Total</b>		<b>100 marks</b>	<b>100%</b>

## Plant and Animal Production N5

### Detailed syllabus

#### Curriculum (2023)

##### Module 1: Soils and their components

##### 1.1 Basic aspects of atoms and molecules

1.1.1 Explain that matter consists of atoms which are made up of protons, neutrons and electrons. These atoms combine to form molecules.

**Range:** Electronic configuration and periodic table are NOT required.

1.1.2 Explain the difference between elements, compounds and mixtures.

1.1.3 Explain that sometimes atoms gain or lose electrons to become charged ions.

1.1.4 Give examples of elements, simple compounds and mixtures, explaining what elements are in the compounds.

1.1.5 Conduct some simple chemical experiments.

**Range:**

Elements to include: C, H, O, N, P, S, K, Na, Ca, Mg, Fe

Radicals to include: OH, NO<sub>3</sub>, PO<sub>4</sub>, SO<sub>4</sub>, CO<sub>3</sub>, HCO<sub>3</sub>

Compounds to include: CO<sub>2</sub>, H<sub>2</sub>O, NaCl.

*No concentrated acids or other very hazardous chemicals are to be handled by students.*

##### 1.2 Changes of state are explained in molecular terms.

1.2.1 Give everyday examples of changes of state, particularly evaporation and condensation, explaining the changes in terms of molecules.

**Range:** No calculations, for example, using specific heat.

##### 1.3 Relative humidity is explained in molecular terms.

1.3.1 Measure dew point and relative humidity and explain observations in molecular terms.

1.3.2 Explain how relative humidity (RH) affects rates of evaporation and transpiration because of diffusion and 'back diffusion'.

**Range:** No calculations are required.

##### Module 2: Plant production principles

2.1 Explain characteristics of good cultivars in relation to their suitability in terms of prevailing climatic and soil conditions.

**Range:** Cultivars refer to fruit trees, agronomic crops and trees suitable for agroforestry.

2.1.1 List characteristics of good cultivars.

**Range:** Cultivars refer to fruit trees, agronomic crops and trees suitable for agroforestry.

2.1.2 Describe the interaction of crops with trees in agroforestry methodologies.

## Plant and Animal Production N5

### Curriculum (2023)

- 2.2** Describe, using examples, procedures followed when preparing the soil for planting. Identify fertiliser and water requirements for crops and trees grown separately or in agroforestry systems when the latter does or does not include leguminous trees or crops.
- Range:** Cultivars refer to fruit trees, agronomic crops and trees suitable for agroforestry, techniques of soil preparation, planting, growing, harvesting and post-harvest on-farm storage.
- 2.2.1** Describe, with examples, soil preparation procedures.
- 2.2.2** Describe types of fertiliser required for a particular crop and the application methods.
- 2.2.3** Describe inter- and intra-row spacing in order to perform planting appropriately.
- 2.2.4** Describe the harvesting in agroforestry systems and the use of agroforestry trees as animal feed and soil mulching.
- 2.2.5** List the benefits and problems of agroforestry systems on 2 ha plots.
- 2.3** Explain reproduction of fruit trees from rootstocks/scion and agronomic crops from seeds.
- 2.3.1** Identify suitable rootstocks and scions for different fruit trees (citrus, deciduous, agroforestry).
- 2.3.2** Describe the characteristics of different rootstocks and scion.
- 2.3.3** Identify and describe correct seeds/seedlings for reproduction of agronomic crops.
- 2.4** Identify, using examples, the irrigation requirements of agronomic crops and trees.
- 2.4.1** Describe irrigation requirements of a crop.
- 2.4.2** Apply irrigation methods in order to fulfil the water requirements.
- 2.5** Identify and describe different types of pests and disease, using examples.
- 2.5.1** Characteristics of pests and diseases and their damage characteristics are described using examples.
- 2.6** Control pests and diseases using correct measures.
- 2.6.1** Biological control, chemical control and physical control are explained in order to select the best control method or combination of integrated control methodologies
- 2.7** List and describe, with examples, the control and preventative measures for pest infection and diseases.
- 2.7.1** Chemical and biological control and preventative measures are described and applied (simulation where necessary).



## Plant and Animal Production N5

### Curriculum (2023)

- 2.8** Identify and explain, with examples, the indications of fruit ripeness or crop maturity in order to perform harvesting.
- 2.8.1** Describe with examples the indications of fruit ripeness or crop maturity in order to perform harvesting.
- 2.8.2** Describe methods of harvesting of at least three different crops.
- 2.8.3** Describe and discuss the post-harvest treatment of crops and on-farm storage.
- 2.9** Describe crop rotation and mulching.
- 2.9.1** Describe application and the significance of crop rotation in a sustainable agricultural enterprise.
- 2.9.2** Describe the importance of mulching in sustainable farming enterprises.
- 2.10** Introduction to hydroponics
- 2.10.1** GAP, GMP and GDP in commercial hydroponics
- 2.10.2** Water quality and availability
- 2.10.3** Characteristics of the hydroponic structures
- 2.10.4** Basic hydroponic farm management

### Module 3: Animal production

- 3.1** Animal anatomy and physiology  
Explain the structure and functioning of the following systems in farm animals: external systems and coverings, sensory systems, nervous system, urinary and genital systems, endocrine gland system, homeostatic control mechanisms.
- 3.1.1** Outline cellular respiration in simple terms.  
**Range:** Both aerobic and anaerobic respiration, using overall equations. No biochemical details.
- 3.1.2** Identify the main organs involved in each system, in diagrams, photographs and carcasses.
- 3.1.3** Explain how they work, in simple terms, including (where appropriate) how they could react in situations of stress.

### Sheep production

- 3.2** Identify and describe the sheep types and breeds in terms of their suitability to environmental conditions.  
**Range:** Environmental conditions include climate, vegetation and diseases. Types will include sheep producing wool as well as others.
- 3.2.1** Identify the different breeds of sheep suitable for southern African conditions.
- 3.2.2** Describe the characteristics of different types of sheep and breeds for purposes of production and breeding in different local environments.



## Plant and Animal Production N5

### Curriculum (2023)

- 3.3** Describe and apply feeding methods and ingredients or rations of sheep in relation to their stages of growth and production.
- 3.3.1** Identify and explain the different methods of feeding sheep in relation to breed, production and growth stages.  
**Range:** Method refers to natural grazing/browsing, supplementary feeding.
- 3.3.2** Explain the different nutritional requirements and rearing practices in relation to the different types of sheep.
- 3.3.3** Explain, using examples, different grazing systems in relation to adaptability and breed selection.
- 3.3.4** Apply the above in the workplace situation.
- 3.4** Grazing system is planned and implemented where possible.
- 3.4.1** Identify and explain the grazing habits of sheep to enable the provision of suitable grazing.
- 3.4.2** Explain carrying capacities of camps so as to determine storage capacity.
- 3.4.3** Explain advantages and disadvantages of different grazing systems.
- 3.4.4** Explain advantages of rotational grazing.
- 3.4.5** Explain disadvantages of overgrazing and describe its consequences, using examples,
- 3.4.6** Explain the principles and importance of the demarcation of camps in relation to effective livestock farming.
- 3.4.7** Identify appropriate material for camp demarcation for effective farming practices.  
**Range:** Refers to materials for fencing and drinking troughs
- 3.5** Select and classify grazing camps for use.
- 3.5.1** Select the appropriate grazing camp in terms of the availability of nutrition, water and foliage for shade.
- 3.5.2** Demarcate camps in order to apply rotational grazing.
- 3.6** Identify suitable areas for sheep production in terms of climatic conditions, vegetation and market availability.
- 3.6.1** Identify, using examples, suitable climates for various breeds of sheep for good production.
- 3.6.2** Identify and explain the grazing habits for sheep to enable the provision of suitable grazing.
- 3.6.3** Identify and describe markets for sheep in order to make sound economic decisions.  
**Range:** Market refers to wool, meat and skin.

## Plant and Animal Production N5

### Curriculum (2023)

- 3.7** Identify and control diseases and parasites affecting sheep according to workplace procedures.
- 3.7.1** Identify diseases and parasites that affect quality sheep production which are common in the area.  
**Range:** Diseases refers to bacterial, protozoan and viral diseases. Parasites will include external and internal parasites.
- 3.7.2** Outline the life cycles of the disease and parasite organisms, with particular reference to measures for prevention and control.
- 3.7.3** Identify the treatments used for different diseases and parasites so as to apply the appropriate intervention.
- 3.7.4** Explain the workplace procedures used to minimize infection, and for treatment of infected sheep
- 3.7.5** Apply the above in the workplace environment
- 3.8** Demonstrate an ability to handle sheep under different circumstances.
- 3.8.1** Explain different ways of handling sheep in different circumstances.  
**Range:** Different circumstances refer to growth stages, treatment, transportation, breeding, castration, tail docking, hoof clipping and shearing.
- 3.8.2** Apply appropriate ways of handling sheep at all stages of rearing and production (includes transportation, castrating, tail docking, hoof clipping, shearing, and treating).  
**Range:** This includes growth stages, treatment, transportation, breeding, castration; tail docking, hoof clipping and shearing.
- 3.9** Explain breeding and selection in sheep.
- 3.9.1** Identify the characteristics of a ram and ewe that are suitable for breeding purposes.
- 3.9.2** Identify and explain breeding methods to improve production.  
**Range:** Methods refer to upgrading, cross breeding and in-line breeding. Mendelian or other genetics is NOT required.
- 3.9.3** Identify and explain the advantages and disadvantages of the breeding methods.

### Pig production

- 3.10** Explain the main pig breeds, their characteristics and housing requirements in order to produce quality products.
- 3.10.1** Identify the different breeds of pigs and their characteristics to enable appropriate selection for particular circumstances.  
**Range:** Circumstances include physical environment, availability of feedstuffs, and market.
- 3.10.2** Identify the correct housing for each of the breeds in terms of the growth stages and production.

## Plant and Animal Production N5

### Curriculum (2023)

- 3.11** Explain, with examples, the methods of feeding pigs.
- 3.11.1** Identify the methods of feeding pigs and explain their advantages and disadvantages.  
**Range:** Methods refers to intensive, semi-intensive and extensive.
- 3.11.2** Identify the correct type of feed for each growth stage to enable proper nutrition.  
**Range:** Growth stages refer to piglets, weaners, boar and sow.
- 3.11.3** Compare types of feed in terms of their nutritional components and value.  
**Range:** Feed refers to pig meal pellets, pig meal mash and swill feed.  
 Nutritional components are limited to those covered in **Animal anatomy and physiology 1** in NQF Level 2.
- 3.11.4** Make correct nutritional decisions for a herd of pigs in conditions similar to those at the college.
- 3.12** Explain and perform selection and breeding principles in pig production for production and reproduction purposes.
- 3.12.1** Identify and explain the characteristics of sow and boar in terms of production and reproduction and explain and apply selection criteria in order to make sound economic decisions.
- 3.12.2** Describe and (where possible) apply breeding methods.  
**Range:** Upgrading, cross breeding and in-line breeding
- 3.12.3** Explain the advantages and disadvantages of the breeding methods.
- 3.13** Identify and control diseases and parasites affecting pigs according to workplace procedures.
- 3.13.1** Identify and describe how climatic conditions impact the types of diseases and parasites that infect and affect pigs.  
**Range:** Climatic conditions refer to cold, wet, snow, frost and humidity.
- 3.13.2** Identify and explain diseases and parasites that commonly infect and affect pigs.  
**Range:** Diseases refer to bacterial, protozoan and viral.
- 3.13.3** Identify and apply the treatment used for different diseases and parasites.  
**Range:** Treatment refers to parasite injections, dosing, dipping.
- 3.13.4** Explain and apply the workplace procedures used for treatment of afflicted and infected pigs.  
**Range:** Workplace procedures refer to handling principles and facilities, vaccination programme and health monitoring (veterinarian inspections).

### TVET First authors

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STUDENT'S BOOK

## Building and Structural Surveying

N5



M Masangane & R Nair

**TVET FIRST**



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## Building and Structural Surveying N5

This document contains important information about the revised curriculum for Building and Structural Surveying N5 for implementation in May 2023.

### Overview of main curriculum changes

- The syllabus for Building and Structural Surveying N5 has been reworked and updated.
- In general, the changes are minor.
- Both the learning content and the learning outcomes have been reworded, and more detail has been provided for all sections.
- Topics are organised in the same sequence as in the 1981 syllabus:
  - Module 1 focuses on basic principles and is largely unchanged.
  - Module 2 now contains more detail on coordinates.
  - Module 3 focuses on height measurement. There are some changes in the content coverage. Aerial surveys is a new topic.
  - Module 4 covers angular measurement. It now provides more detail about the basic principles and about tacheometry.
  - Module 5 on building surveys contains a new section on building regulations. There is also more detail on design and production drawings as well as on drafting plans and elevations of simple buildings, drains and roads based on field notes.
  - Module 6 covers setting out and now requires more coverage of constraints in setting out a building and of the position of profiles and datum for a building. Setting out and levelling of drainage work is covered in much greater detail.
- The aims of the new syllabus are:
  - to give students a thorough background in land surveying, particularly as it applies to construction
  - to ensure that students have a good understanding of the main areas of focus of a land surveyor.

### Structure and weighting changes

#### Previous syllabus (1981)

Old curriculum modules (no weighting given)	
1.	Basic principles
2.	Linear measurements
3.	Height measurement
4.	Angular measurement
5.	Building surveys
6.	Setting out

## Building and Structural Surveying N5

### New syllabus (2023)

New curriculum modules		Weighting
1.	Basic concept of surveying	10
2.	Linear measurement	20
3.	Height measurement	20
4.	Angular measurement	20
5.	Building surveys	10
6.	Setting out	20
<b>Total</b>		<b>100</b>

### Detailed curriculum changes

The following table sets out the changes made to the curriculum. All new/changed content has been colour coded in red.

Previous curriculum (1981)	New curriculum (2023)
<b>Module 1: Basic principles</b>	<b>Module 1: Basic concepts of surveying</b>
1.1 The basic surveying terms and principles	1.1 Surveying 1.1.1 Explain the term 'surveying'. 1.1.2 Explain the objective, purpose and principles of surveying.
1.2 Description of the terms surveying, level plane, horizontal plane, linear measurement, height and angular measurements	1.2 Surveying terms 1.2.1 Explain the following terms of surveying: <ul style="list-style-type: none"> <li>Level plane</li> <li>Horizontal plane</li> <li>Linear measurement</li> <li>Topographic surveying</li> <li>Height and angular measurements</li> </ul>
1.3 Methods of fixing a point, trilateration, intersecting arcs, rectangular offsets, triangulation, polar co-ordinates and control	1.3 Stages of the process of surveying 1.3.1 Explain the following stages of the processes of surveying: <ul style="list-style-type: none"> <li>Taking a general view</li> <li>Observations and measurement</li> <li>Presentation of data</li> </ul>
1.4 The principle of working the whole to the part	1.4 The principle of working the whole to the part 1.4.1 Explain and compare the principles of working from whole to part.



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Previous curriculum (1981)	New curriculum (2023)
<p>1.5 The difference between accuracy and precision</p> <p>1.6 Characteristics of different types of errors</p>	<p>1.4.2 Explain the fundamental principles which should be taken into consideration to enable a good result.</p> <p>1.5 Accuracy and precision</p> <p>1.5.1 Compare the difference between accuracy and precision.</p> <p>1.6 Errors in measurement</p> <p>1.6.1 Explain the characteristics of the different types of errors in surveying.</p>
<p><b>Module 2: Linear measurements</b></p> <p>2.1 Calculation of slope correction for distances measured on an incline</p> <p>2.2 Graphical method used to correct distances measured on an incline</p> <p>2.3 Methods of direct linear measurement:</p> <ul style="list-style-type: none"> <li>• Ranging and measuring over a hill and through a depression</li> <li>• Measuring sloping distances using chain, tape and band by stepping; using a clinometer</li> <li>• Measuring around a pond, across a river or busy road</li> <li>• Measuring when a building obstructs vision</li> <li>• The uses of chains, tapes and band</li> </ul>	<p><b>Module 2: Linear measurements</b></p> <p>2.1 Errors in measurement and corrections</p> <p>2.1.1 Calculate the horizontal distance using the following methods with a steel tape:</p> <ul style="list-style-type: none"> <li>• Sag</li> <li>• Tension</li> <li>• Slope</li> <li>• Temperature</li> <li>• Length</li> <li>• Altitude at sea level</li> </ul> <p>2.1.2 Explain the graphical method used to correct the distance measured on an incline.</p> <p>2.1.3 Name the requirements to obtain sufficient accuracy when taping.</p> <p>2.2 Measuring of linear methods</p> <p>2.2.1 Measure the sloping distance using the following methods chain, tape and band by:</p> <ul style="list-style-type: none"> <li>• stepping using a clinometer</li> <li>• measuring around a pond, across a river or busy road</li> <li>• measuring when a building obstructs the vision.</li> </ul> <p>2.3 The use of chain, tape and bands</p>

## Building and Structural Surveying N5

Previous curriculum (1981)	New curriculum (2023)
<ul style="list-style-type: none"> <li>• Description of equipment used for chain surveys</li> <li>• Factors which govern chain survey framework</li> <li>• The application of chain survey principles to a small practical situation</li> <li>• The plotting of survey lines including all detail</li> </ul> <p>2.4 Linear survey methods</p> <ul style="list-style-type: none"> <li>• Measuring offsets and ties by optical square and tape</li> <li>• The recording of measurements taken in a field by a recognised booking method</li> <li>• Identification and correction of fieldwork errors</li> </ul>	<p>2.3.1 List the advantages and disadvantages of the following linear measurement equipment and know how to operate them:</p> <ul style="list-style-type: none"> <li>• Chain</li> <li>• Steel tape</li> <li>• Bands</li> </ul> <p>2.3.2 Describe how equipment is used for chain surveys.</p> <p>2.3.4 Explain the factors which govern the chain surveying framework.</p> <p>2.3.5 Explain how to apply chain surveying principles to a small practical situation.</p> <p>2.4 <b>Plotting the survey</b></p> <p>2.4.1 <b>Explain the principal steps in the routine of plotting maps and plans.</b></p> <p>2.5 <b>Co-ordinates</b></p> <p>2.5.1 <b>Explain the term 'joins'.</b></p> <p>2.5.2 <b>Calculate the distance and direction between two or more known points by means of coordinates (join calculations) in a table form.</b></p> <p>2.5.3 <b>Explain the term 'polar'.</b></p> <p>2.5.4 <b>Calculate the unknown coordinates of the station in table form.</b></p> <p>2.5.5 <b>Calculate the oriented direction by means of observed angles.</b></p>
<p><b>Module 3: Height measurement</b></p> <p>3.1 Sources of vertical control</p>	<p><b>Module 3: Height measurement</b></p> <p>3.1 Levelling</p> <p>3.1.1 Explain levelling and the purpose of levelling</p>



## Building and Structural Surveying N5

Previous curriculum (1981)	New curriculum (2023)
3.2 Trigonometrically levelling	3.2.1 Explain the following: <ul style="list-style-type: none"> <li>• Trigonometric levelling</li> <li>• Barometric levelling</li> <li>• Differential or spirit levelling</li> <li>• Aerial surveying</li> </ul>
3.3 Levelling instruments <ul style="list-style-type: none"> <li>• A brief description of traditional levelling methods and instruments including the spirit, water and Cowley levels; dumpy level; tilting level; automatic level</li> <li>• Checking accuracy of levelling instruments</li> <li>• The reading of the metric levelling staff</li> </ul>	3.2.2 Explain the principles of trigonometrical levelling. 3.2.3 Calculate the elevation of points over a short distance and a long distance. 3.3.1 Explain the functions of the following levelling equipment: <ul style="list-style-type: none"> <li>• Levelling staff</li> <li>• Wye level</li> <li>• Cooke's level</li> <li>• Cushing's level</li> <li>• Staff bubble</li> <li>• Change plate</li> <li>• Traveller or boning rod</li> <li>• Dumpy level</li> <li>• Tripod stand</li> <li>• Theodolite</li> <li>• Tilting level</li> <li>• Automatic level</li> <li>• Surveyor staffs</li> </ul>
3.4 Classifications of traverse	3.4 Classifications of traverse 3.4.1 Classify and explain the difference between closed and open traverses.
3.5 Classifications of errors in levelling	3.5 Classifications of errors in levelling 3.5.1 Explain the following types of errors in levelling: <ul style="list-style-type: none"> <li>• Natural causes</li> <li>• Instrument errors</li> <li>• Personal errors</li> </ul>
3.6 Systems of booking and reducing the readings	3.6 Systems of booking and reducing the readings
3.3 Levelling instruments (cont.) <ul style="list-style-type: none"> <li>• Recording and calculating-reduced levels by 'rise and fall' and 'collimation' methods including inverted staff and application of the required checks and corrections</li> </ul>	3.6.1 Calculate the reduced levels by means of the following: <ul style="list-style-type: none"> <li>• Rise and fall system</li> <li>• Flying levelling</li> <li>• Series levelling</li> </ul>

## Building and Structural Surveying N5

Previous curriculum (1981)	New curriculum (2023)
<ul style="list-style-type: none"> <li>Flying, grid, reciprocal and cross-sectional levelling methods</li> </ul> <p>3.7 Cross-sectional levelling methods</p> <p>3.8 Sources of instrumental error</p> <p>3.3 Levelling instruments (cont.)</p> <ul style="list-style-type: none"> <li>Sources of induced and instrumental errors</li> </ul>	<ul style="list-style-type: none"> <li>Collimation system including inverted staff</li> <li>Application of the required checks and corrections</li> </ul> <p>3.7 Cross-sectional levelling methods</p> <p>3.7.1 Explain how cross-sectional levels in the field work are taken at right angles to the longitudinal section.</p> <p>3.7.2 Explain ways in which plotting is carried out in the cross section.</p> <p>3.8.1 Explain sources of <b>induced</b> and instrumental errors.</p>
<p><b>Module 4: Angular measurement</b></p> <p>4.1 Basic construction of the theodolite</p> <p>4.2 The various types of theodolite</p> <p>4.3 Use of the theodolite to measure horizontal and vertical angles</p>	<p><b>Module 4: Angular measurement</b></p> <p>4.1 <b>Purpose of angular measurement</b></p> <p>4.1.1 <b>Explain how the horizontal and vertical angular measurements are related on points on ground.</b></p> <p>4.2 Classification of theodolites</p> <p>4.2.1 Explain and differentiate the following classes of the theodolite:</p> <ul style="list-style-type: none"> <li>Transit theodolite</li> <li>Non transit theodolite</li> <li>Vernier theodolite</li> <li>Micrometer theodolite</li> </ul> <p>4.3 The use of the theodolite and measuring the horizontal and vertical angle</p> <p>4.3.1 Explain the correct procedures when setting up a theodolite when taking the readings.</p> <p>4.3.2 Explain and calculate the methods of horizontal and vertical angle measurement by means of circle left and circle right direction that were observed from the field by means of a theodolite.</p>

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Previous curriculum (1981)	New curriculum (2023)
<p>4.4 Recording the readings from the theodolite</p> <p>4.5 Tacheometry, calculation of horizontal and vertical components</p>	<p>4.4 Recording the readings from the theodolite</p> <p>4.4.1 Explain how to record the reading from the theodolite by:</p> <ul style="list-style-type: none"> <li>• taking measurements</li> <li>• recording the reading in a field book.</li> </ul> <p>4.5 Tacheometry</p> <p>4.5.1 Explain the purpose and functions of tacheometry in surveying:</p> <ul style="list-style-type: none"> <li>• List and explain the instruments used in tacheometry surveying.</li> <li>• Apply the principles and systems of tacheometry in the form of calculations.</li> <li>• Calculate the horizontal and vertical components.</li> </ul>
<p><b>Module 5: Building surveys</b></p> <p>5.1 Surveying a small building</p> <p>5.2 Instruments used for taking internal and external dimensions</p> <p>5.3 Measuring and recording a building and its site</p> <p>5.4 Running internal and external measurements taken horizontally and vertically</p> <p>5.5 Plotting survey from field measurements</p>	<p><b>Module 5: Building surveys</b></p> <p>5.1 Surveying a small building</p> <p>5.1.1 Explain the building regulations and building construction practices.</p> <p>5.1.2 Interpret and classify the drawings into design and production stages.</p> <p>5.2 Instruments used for taking internal and external dimensions</p> <p>5.2.1 Name the instruments that are used to take measurements in building surveying.</p> <p>5.2.2 Explain the procedures for surveying a new and existing building.</p> <p>5.3 Plotting survey from field measurements</p> <p>5.3.1 Construct the drawings from field measurements and show all the following:</p> <ul style="list-style-type: none"> <li>• Plan and elevation of all the sides of the building including the roads, drainage, electrical, etc.</li> </ul>

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Previous curriculum (1981)	New curriculum (2023)
<p><b>5.6</b> Calculations: Cut and fill e.g., for a road, plotting vertical sections, roads, drains, etc.</p>	<p><b>5.4</b> Calculation of cut and fill</p> <p><b>5.4.1</b> Explain and calculate the different gradients of the ground level, inclusive of:</p> <ul style="list-style-type: none"> <li>roads</li> <li>plotting vertical sections</li> <li>drainage systems.</li> </ul>
<p><b>Module 6: Setting out</b></p> <p><b>6.1</b> Setting out procedure for a simple rectangular building:</p> <ul style="list-style-type: none"> <li>Equipment required</li> <li>Possible constraints in setting out a building</li> <li>Positioning of profiles and datum for a building</li> <li>Discussion of how profiles are used with a traveller to control excavation and foundation levels</li> </ul> <p><b>6.2</b> Setting out and levelling of drainage work</p>	<p><b>Module 6: Setting out</b></p> <p><b>6.1</b> Setting out procedure for a simple rectangular building</p> <p><b>6.1.1</b> Explain the setting out of a rectangular building used for the removal of topsoil.</p> <p><b>6.1.2</b> Name and explain the equipment required to set out a simple building.</p> <p><b>6.2</b> Constraints in setting out a building</p> <p><b>6.2.1</b> Explain the problems in setting out the small building.</p> <p><b>6.2.2</b> Analyse the procedures to rectify the problems when surveying a small building, using the following:</p> <ul style="list-style-type: none"> <li>Setting out gradient by boning rod</li> <li>Setting out excavations for foundation</li> <li>Setting out slopes stakes</li> </ul> <p><b>6.3</b> Position of profiles and datum for a building</p> <p><b>6.3.1</b> Explain how profiles are used with a traveller to control excavation and foundation levels.</p> <p><b>6.4</b> Setting out and levelling of drainage work</p> <p><b>6.4.1</b> Interpret readings from the pipeline drawing:</p> <ul style="list-style-type: none"> <li>Determine the slope ratio of pipelines and pipe length from longitudinal sections.</li> </ul>

## Building and Structural Surveying N5

Previous curriculum (1981)	New curriculum (2023)
<ul style="list-style-type: none"> <li>• Invert of a drain, a sight rail and a traveller</li> <li>• Calculating a suitable length of traveller and reduced levels of sight rails from given drawings</li> <li>• Establishing sight rails for horizontal position and depth control of a straight drain between manholes</li> </ul>	<ul style="list-style-type: none"> <li>• Draw a longitudinal section of the proposed drain.</li> </ul> <p><b>6.5</b> Invert of a drain, a sight rail and a traveller</p> <p><b>6.5.1</b> Calculate a suitable length of a traveller and reduced levels of sight rails from given drawings.</p> <p><b>6.6</b> Establishing sight rails for horizontal position and depth control of a straight drain between manholes</p> <p><b>6.6.1</b> Explain how site rails are erected above the ground at a predetermined level above the excavation.</p> <p><b>6.6.2</b> Explain two forms of sight rails depending on the circumstances in which they are used.</p> <p><b>6.6.3</b> Calculate the staff readings required to set out sight rails at the chainages of the drain using the following:</p> <ul style="list-style-type: none"> <li>• Invert level</li> <li>• Ground level</li> <li>• Gradient</li> <li>• Back sight reading</li> </ul> <p><b>6.6.4</b> Explain the setting out of the drain using an engineer's tilting level to obtain the following:</p> <ul style="list-style-type: none"> <li>• The length of the drain</li> <li>• The gradient</li> <li>• The invert level</li> <li>• Back sight</li> <li>• Bench mark</li> </ul>

## Building and Structural Surveying N5

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### **TVET First authors**

M Masangane and R Nair

## Implementation dates 2023

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Semester 2	
Farming Management N5	
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Computer Practice: Farming	N5
Farming Technology and Mechanisation	N5
Plant and Animal Production	N5
Financial Management: Farming	N5

### Engineering

Trimester 2	
Building and Structural Surveying	N5

Trimester 3	
Building and Structural Surveying	N6

This Curriculum Guide for TVET lecturers breaks down the changes between the old and new NATED curricula.

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New or amended Learning Outcomes

Changes to the weightings of modules in the curriculum

Changes to the structure of exams and assessment

Details of content that has been removed or that has moved between levels

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