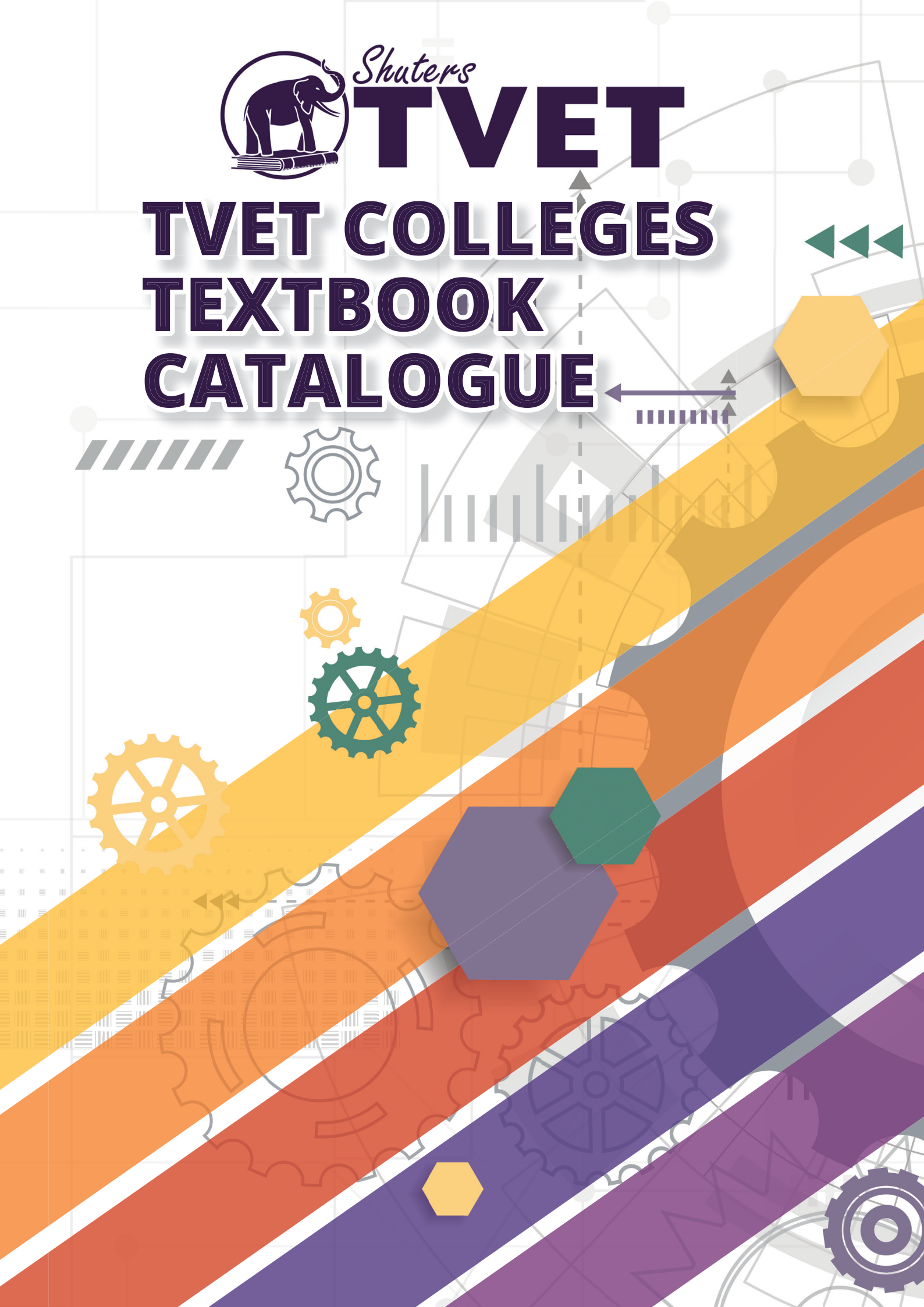


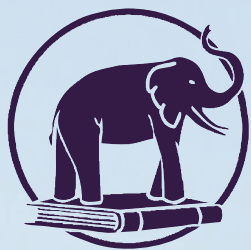


Shutters

TVET

TVET COLLEGES TEXTBOOK CATALOGUE





Shuter & Shooter

PUBLISHERS (PTY) LTD

SHUTER & SHOOTER PUBLISHERS (PTY) LTD is a proudly South African publishing company. Established as a bookstore almost 100 years ago, we began publishing IsiZulu novels, poetry and textbooks from the early 1930s.

Since then, we have been successfully producing quality literature and educational materials in all of the South African official languages, as well as for the core schools curriculum.

OUR CORE BUSINESS IS EDUCATION

SHUTER & SHOOTER PUBLISHERS (PTY) LTD publishes over 950 CAPS-approved titles on the Department of Basic Education's national textbook catalogue, as well as an extensive range of supplementary educational materials. After much research and development, we have also added e-learning to our impressive stable of learning and teaching support material.

2017 saw the launch of our exciting new study guide series – *Ace It!* A unique series that focuses on the different ways in which learners learn, *Ace It!* includes study tips for each learning style to help learners excel in their year-end exams.

In 2018 we published our first TVET title and have since produced titles in over 15 subject areas.

In 2018, Shuter & Shooter concluded a landmark transaction with the Zungu Investments Company (ZICO) which saw the company become one of the largest 100% black-owned educational publishers in South Africa.



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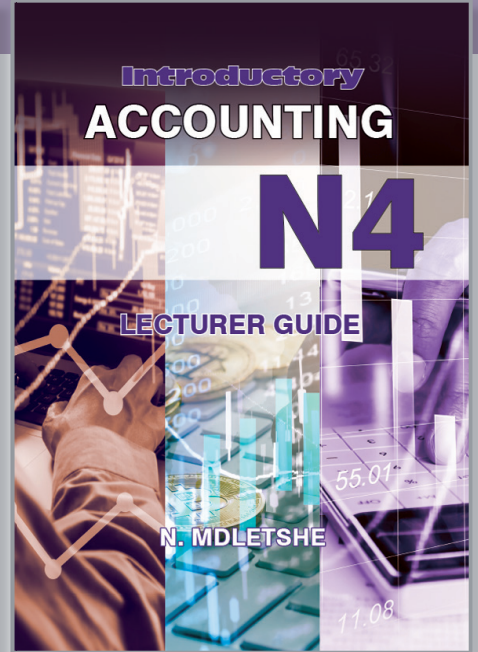
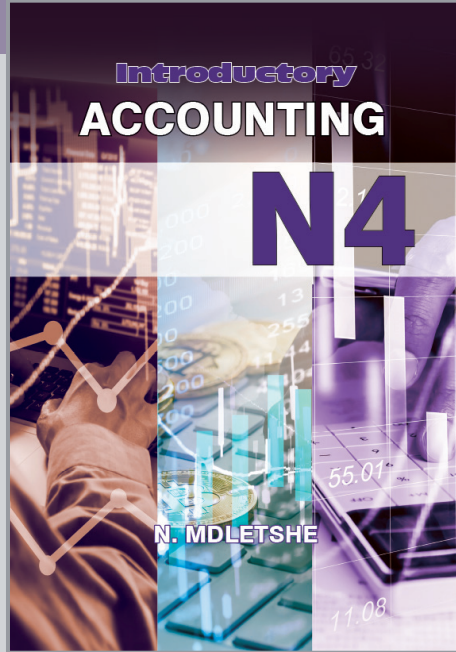
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INTRODUCTORY ACCOUNTING N4

Written in line with the updated NATED syllabus, **Introductory Accounting N4** introduces the student to the world of accounting. Using simple, relevant examples and explanations, students learn to grasp the concepts needed to master basic Accounting. A variety of activities in the *Student Textbook* help students to apply their theoretical knowledge in practice.

The *Lecturer Guide* provides the solutions to all of the activities in the Student Textbook. In addition, a photocopiable workbook is part of the Lecturer Guide, allowing lecturers to hand out templates to students to assist them in completing the activities.



• accounts in the ledger from a

the amounts on each side of the account to find the difference. Enter the larger figure as the total for both the debit and credit sides. If the debit side does not add up to this total, calculate the figure that will make it add up by deducting the smaller from the larger amount. Enter this figure so that it balances the account. This is usually abbreviated as balance c/d.

D. Enter the balance brought down (abbreviated as balance b/d) on the opposite side of the account. (The balance brought down is usually dated one day later than the balance forward because the balance forward is dated as one period has closed and another one has started.)

Example 9.1

The following General Ledger accounts relate to Fire and Ice Enterprise, year end 2019.

Balance Sheet section (Statement of Financial Position section):

Capital B1						
Date		Details	Fol	Amount	Date	Details
2019	31	Balance	c/d	180 000	2019	1 Balance
Dec					Jan	16 Furniture
						Bank

Examples and explanations expand understanding.

Activity 7.3

The following transactions relate to Evergreen Cleaners for the month of April:

Evergreen Cleaners worker schedule for 31 August 2019

Employee	Basic Salary	Overtime	PAYE	Medical Aid
J Suleman	R45 000	R1 560	R9 450	R2 510
B Idahosa	R5 000	R12450	R2 320	R3 230
N Bhengu	R22 000	R2 550	R5 650	R2 870
R Ngidi	R9600	R15380	R6 250	R2 960

Additional information:

- All employees contribute 5% of their basic salary to ABC pension fund.
 - All information on PAYE is given.
 - UIF is 1% of the employee's basic salary and the employer also contributes employee's basic salary.
 - UIF is limited to R14 872.
 - All employees contribute R100 to the staff association every month.
 - The employer contributes 10% of the employee's medical aid.
 - The employer also contributes 5% of the employee's basic salary to the staff association.
- Round off to the nearest rand.

to complete this activity.

MODULE 6:

Trading concerns: subsidiary journals and postings

Activity 6.1

Cash Receipts Journal of Mario Super Store July 2019

[illegible][illegible]

Exercises test the application of knowledge at different levels.

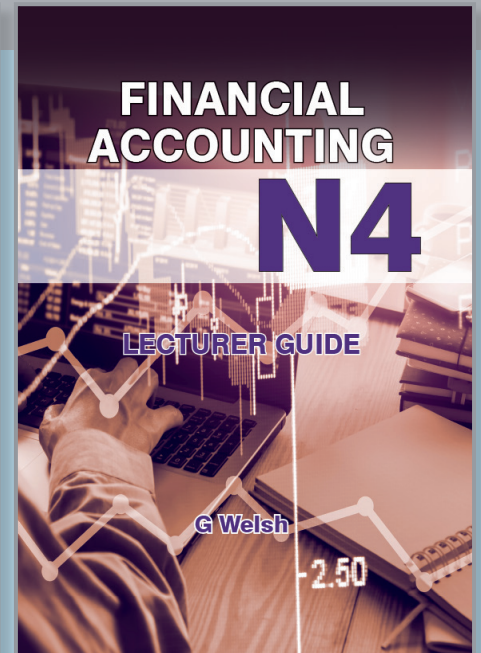
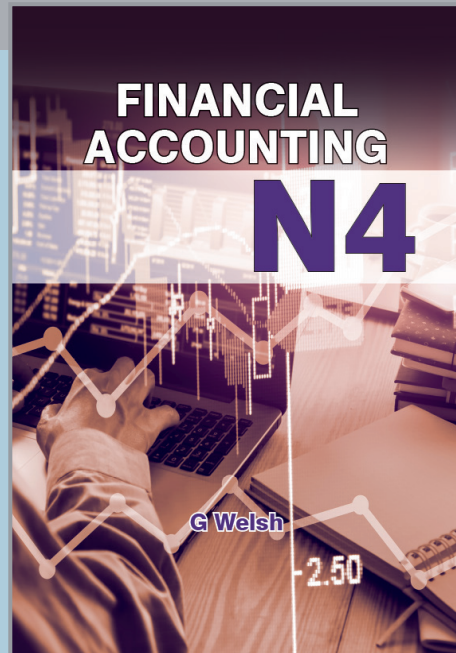
Photocopiable
templates to
help students
complete
assignments.

9781485836490	INTRODUCTORY ACCOUNTING N4 STUDENT TEXTBOOK
9781485836506	INTRODUCTORY ACCOUNTING N4 LECTURER GUIDE

FINANCIAL ACCOUNTING N4

Shuters Financial Accounting N4 and **N5** is written in line with the updated NATED syllabus, and is aimed at students who have a basic knowledge of Accounting principles. After recap and revision of their prior knowledge, more complex concepts and calculations are learned. Exercises and activities are provided in the *Student Textbook* let students apply and practice their knowledge.

The *Lecturer Guide* provides all answers to the activities in the Student Textbook. In addition, a photocopiable workbook allows lecturers to hand out templates to students to assist them in completing the activities.



Example:

Following transactions occurred in the RNB bank statement of Ezweni Dealers as 1 April 2020:

RNB Bank Statement

Pick your Spot Lounge
523 Dambaza road, Pietermaritzburg, 3201
033 326 9999 [fax]
info@ezweni.co.za

DATE: APRIL 1, 2020

OPENING BALANCE		CLOSING BALANCE		
6 534.00		8 267.00		
DATE	DESCRIPTION	DEBIT	CREDIT	TOTAL
	Opening balance			6534.00
01/04/2020	Deposit		25 200.00✓	31 734
01/04/2020	Cheque 041	4 200.00✓		27 534
03/04/2020	Cheque 042	798.50✓		26 735.50
05/04/2020	Deposit		8 492.00CRJ	35 227.50
06/04/2020	Cheque 043	5 900.00CPJ		29 327.50
09/04/2020	Cheque 044	1 950.00✓		27 377.50
11/04/2020	EFT	4 500.00✓		22 877.50
13/04/2020	Deposit		5 900.00✓	28 777.50
16/04/2020	EFT	2 970.00✓		25 807.50
16/04/2020	Cheque 045	5 200.00✓		20 607.50
				15 407.50
				5 200.00

Examples and explanations expand understanding.

Purchases Journal

Doc no	Day	Details	Fol	Creditors control	Trading inventory	Sundry accounts
					Amount	Fol

Doc no – this is the source document number for the transaction that has taken place.

Day – this is the date on which the transaction has taken place.

Details – this refers to the person or company that we are buying from on credit.

Fol – in this column we record the reference no. when posting to the Creditors Ledger.

Creditors control – This is the main column and all payments to creditors must first be recorded in this column.

Trading inventory – this column depends on the type of entity or business.

Sundry accounts – here we record all transactions that cannot be recorded in the columns created in the bank column. This is for transactions that do not have their own column.

Amount – the amount of the transaction that took place.

Fol – this column is used after the journal has been totalled and needs to be posted to the General Ledger.

Details – the details of the transaction. When posting this will be the name of the general ledger account that you are posting to.

In-line definitions build student confidence and enrich learning.

MOCK ASSESSMENT 1

Question 2

Wages Journal for Teaspoons Plumbing as at 9th October 2020

	Normal time	Overtime	Deductions		Contribution
Hrs	Rate	Amount	Gross wage	Pension	Med aid
75	600	3 000	180	120	507.60
90	960	3 760	210	200	639.00
810	3 410	195	360	578.70	26
2370	10 170	585	680	1725.30	78
				3068.30	7101.70
					585

Fine Retailers as at September 2020

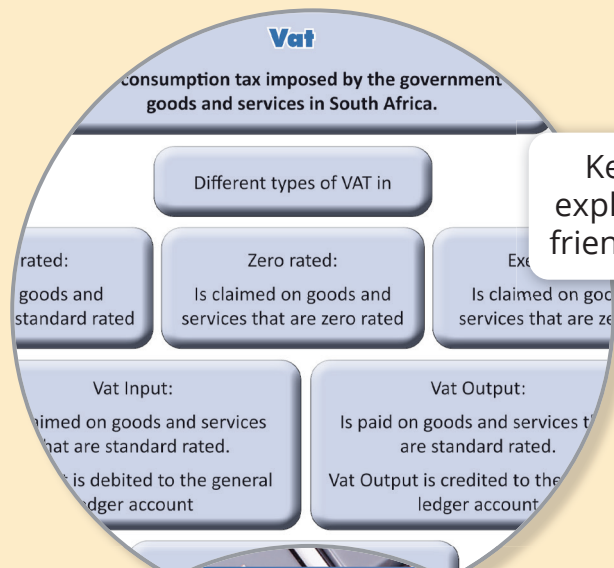
Analysis of receipts	Bank	Sales	Trade receivables control	Sundry accounts
	Amount			
R 21 500	R 21 500	R 21 500		
R 4 500	R 4 500			
R 45 000	R 45 000	R 45 000		
R 15 200	R 15 200			
R 3 700	R 3 700			

Solutions, assessments and photocopiable study tools.

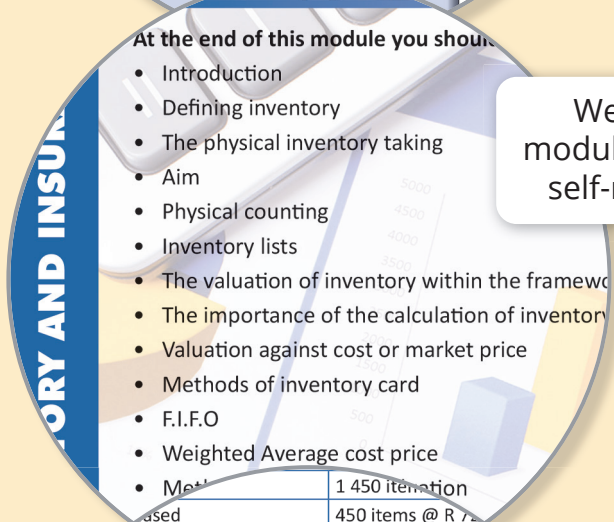
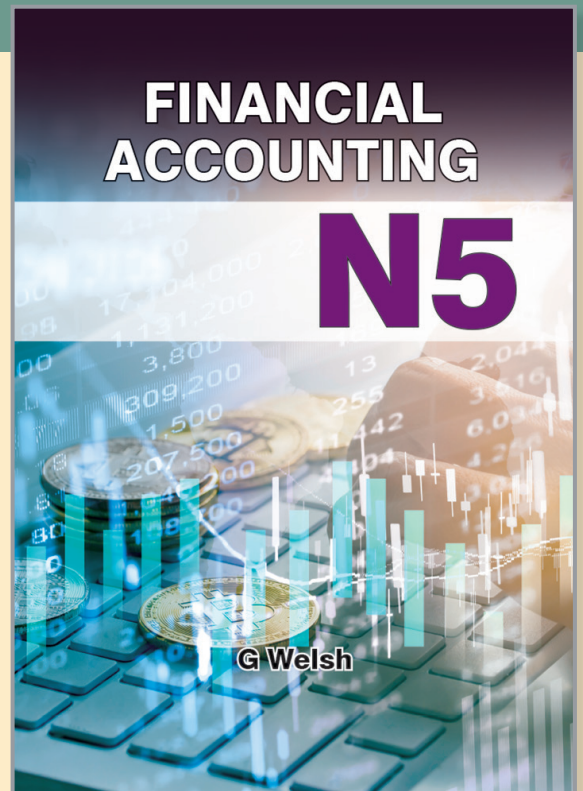
9781485836421	FINANCIAL ACCOUNTING N4 STUDENT TEXTBOOK
9781485836735	FINANCIAL ACCOUNTING N4 LECTURER GUIDE

FINANCIAL ACCOUNTING

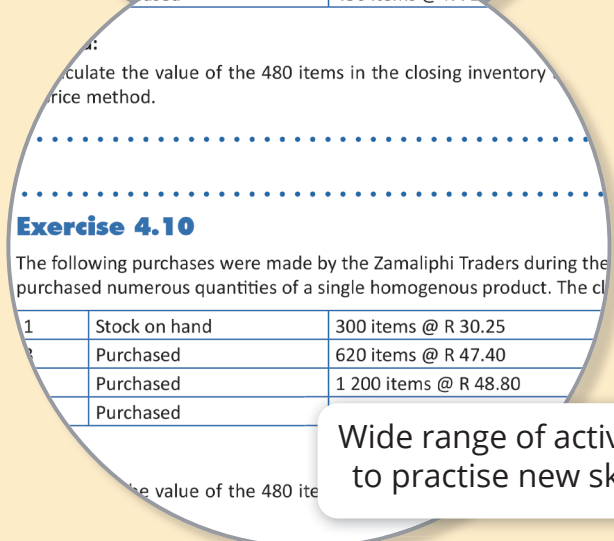
N5



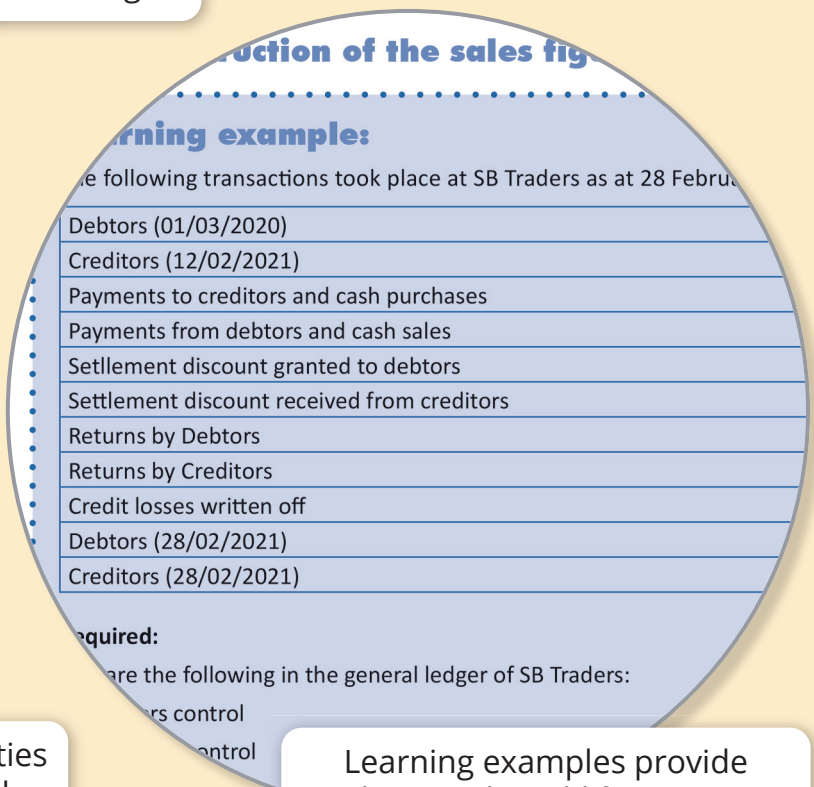
Key concepts explained in user friendly language.



Well defined module goals allow self-monitoring.



Wide range of activities to practise new skills.



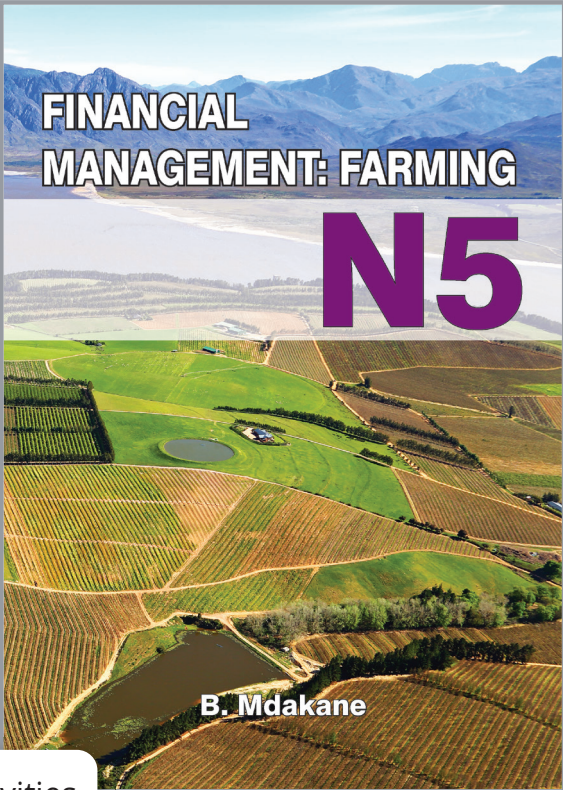
Learning examples provide students with real-life situations.

FINANCIAL MANAGEMENT: FARMING N5

Financial Management: Farming N5 student textbook has been written to enable students to develop the necessary knowledge and skills which will help them to make a positive contribution as owners or managers of a farming business, with specific reference to financial management.

They will learn how to apply basic finance principles and financial analysis concepts to a farming enterprise and will be able to undertake basic financial statement calculations as they apply to the farming business environment.

Helpful activities and examples allow students to hone these skills, and the colourful pictures and user-friendly layout of the book make this subject particularly accessible.



Wide range of activities to practice new skills.

...ts, liabilities (outsiders' ...
..., namely:
Current (short term) liabilities, which ...
...payment period of 36 months or less, such ...
...with respect to the previous year, provisio ...
...medium and long term loans during the comi ...
...that is due to SARS on the date of balance ...
...payment of income tax for previous year, prov ...
...cell phone contracts (electronic gadgets), etc ...
Medium term liabilities are all those deb ...
...period of ten years or less. These include lo ...
...instalments for vehicles, lease agreem ...
...um term loans from Land Bank.
Long term liabilities, which are ...
...more than 10 years:

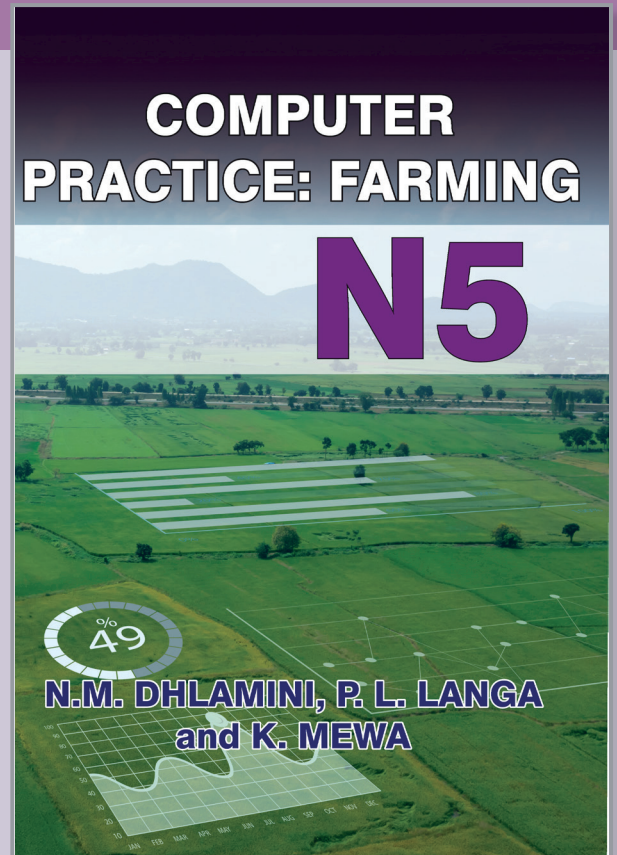
... (d) land	Storage ...
... shares at the co-operative	Tools and imp ...
... of production items	Tree plantation alo ... homestead.
... tractor garage	School fees paid for tw ...
... Diesel waiting to be used during the ... harvesting season	Value of stud cattle
Value of own land	Milking equipment in the ...
Products ready to be sold	Commercial lambs ready ...
Heap of compost to be used in the field	R200 000 in a notice dep ...
Favourable bank balance at Nedbank	Electricity account paid ...
... bond at Land bank for land purchased	Two silos by the farm s ...
... milking parlour	Vehicles at market va ...
... draft account at Standard Bank	Holiday house at U ...
... s in the field ready for harvest	Cellphone contr ...
... one ha of land	Wool ...

Learning examples provide students with real-life situations.

COMPUTER PRACTICE: FARMING N5

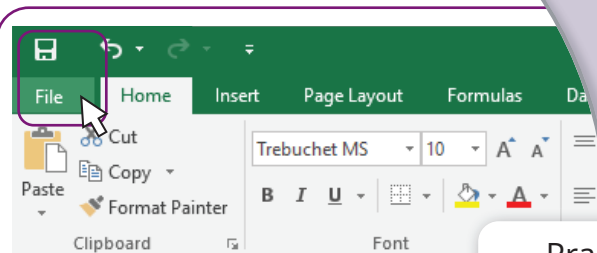
Shuters Computer Practice: Farming N5 builds on the knowledge that students will have gained at N4 level. The same five topics covered in N4 are now explored in greater depth, with the addition of the Microsoft application OneNote.

This book will help students to acquire problem-solving skills alongside the technical know-how of operating the various computer software packages. This textbook integrates both theoretical and practical aspects of computer use with particular reference to the farming and agriculture industry.



Exporting a file to PDF

Select the **File** tab on the top left-hand corner



Practical examples help students to grasp concepts and procedures.

Real-world activities help students to apply their knowledge.

Borders

Apply pre-defined cell border

- Choose the cell or range of cells, border style, or erase a border.
- On the **Home** tab, in the **Font** group
 - Choose the arrow next to **Borders** to display the Borders task pane.



Hint

To make use of the **Borders** task pane, click the **Borders** button in the **Font** group on the **Home** tab.

Helpful hint boxes provide useful guidance for students.

Activity 4.2 60 minutes (e)

Part A

- Create the following document in indicated.

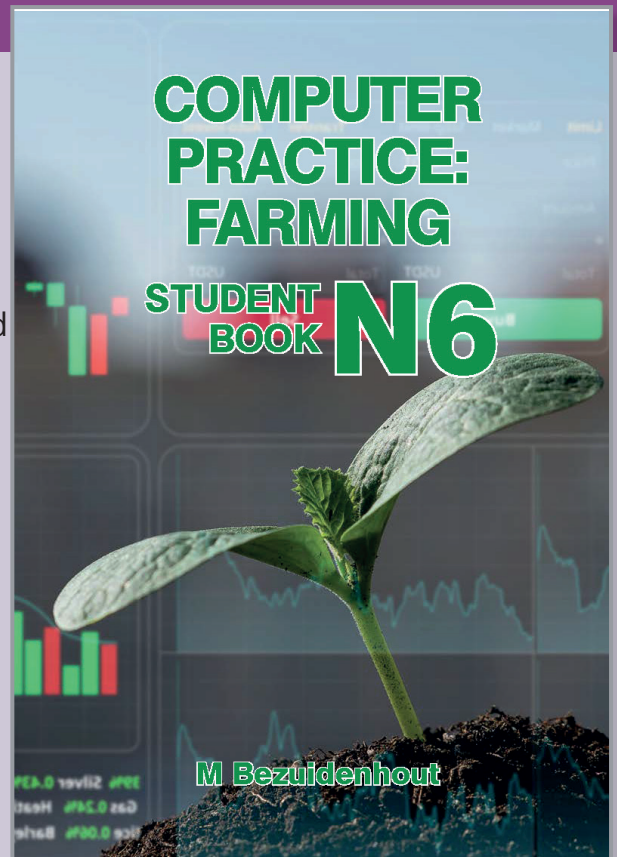
	A	B	
1	FRESH FRUIT & VEGETABLE		
2	Ingogo Farm		
3	NEWCASTLE		
4	Costing Sheet for February		
	INVOICE	ITEM	

COMPUTER PRACTICE: FARMING N6

Shuters Computer Practice: Farming N6 is the last level of Computer Practice, and uses the foundation of knowledge acquired at levels four and five, to help students to apply the correct computer software with confidence in a farming context.

The book integrates both theoretical and practical knowledge and will help students to develop logical and critical thinking skills with particular reference to using computers in farming.

The wider ethical aspects of computing and IT, as well as the Internet and computer networks are also covered, giving the student an excellent grounding and preparation for their final examination.



	Servers
	Storage
Client Managed	Ver



The Queensland government in Australia has prepared businesses thinking of implementing cloud computing from a business perspective. This website can be accessed at <https://www.business.qld.gov.au/running-business/it/cloud>

Videos on cloud computing can be found at [https://www.youtube.com/watch?v=...](#)

Links to real world examples provide additional learning context.

Practical worked examples help students get to grip with unfamiliar concepts.

Module Summary

This is a practical module. Make sure you have

- Integrate images and text.
- Use advanced text box features.
- Create and/or import and utilise quotes and references.
- Draw and or import shapes.
- Use collaboration functions. (Share and merge changes from other documents)
- Add captions, cross-references, bookmarks
- Add basic citations and generate a bibliography
- Add a digital signature and password protect the document
- Add a digital signature and password protect the document

Module summary lists help students to check that they have covered the content.

Activity 4.5

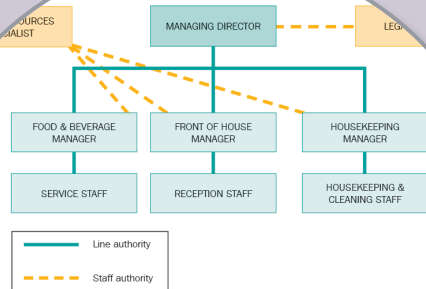
1. Open the worksheet created in Activity 4.4 and enter the following data.
2. Save your work as Activity 4.5.

Date and time functions and calculations

Dates play an important part in many calculations, especially in farming. It is important to understand how Excel stores dates in its internal format. Working with dates is the format in which dates are stored in Excel. To write months in a text format and to include

APPLIED MANAGEMENT N4

Aimed at Hospitality Students, **Shuters Applied Management N4** is based on the latest NATED syllabus. It contains South African based examples and activities to engage hospitality students with all aspects of Management in that environment. Through examples and activities, students master the necessary concepts and learn to apply their knowledge. The book provides references to e-resources such as videos and websites which make the subject come alive for students who may not have experienced the environment first hand.



Line and staff organisation structure

Advantages of line and staff organisation

Relief to line of executives: In line and staff organisation, the advice and counselling that is provided to the line managers divides the work between the two. The line managers can concentrate on the execution of plans and they are relieved of dividing their attention to many areas.

Expert advice: The line and staff organisation facilitates expert advice to line managers in the time of need. The planning and investigation related to various matters can be handled by the staff managers who are experts in their respective fields.

Creative problem solving and decision-making: As part of the line and staff organisation, the staff managers can contribute to the line managers' creative problem solving and decision-making as part of the line and staff organisation.

Disadvantages of line and staff organisation

Lack of understanding: In line and staff organisation, there are two authorities flowing at one time. This may result in confusion between the two. As a result, the workers are not able to understand who is their correct authority.

Costly: It may be costly to maintain a staff manager.

Principles and processes explained.

Activity: Role play

Your lecturer will divide the class into groups of four and let you role play the following scenario:

Role play: Undetected booking

Characters:



Mrs Khuzwayo



Receptionist



Duty Manager



On-line representative

Mrs Khuzwayo made a booking to stay at Starlight Guest house through an on-line booking site. They booked for two nights and breakfast at person sharing. The booking was confirmed on-line and guaranteed, since they had paid a deposit for it.

Mr and Mrs Khuzwayo arrived at Starlight Guest house for their booking. Unfortunately the guest house was fully booked and the neighbouring guest houses were fully booked as well.

When they asked what had happened, since they had a confirmation number that the Starlight Guest house was no longer a part of the on-line central reservation system. Mr and Mrs Khuzwayo were furious and asked to see the duty manager to resolve the dilemma.



PRACTICAL COMPONENT

Your lecturer will set an assignment that you will need to complete. Here is an example of a typical assignment.

1. Leadership has the capacity to translate vision into reality.

Bill Gates, said "As we look ahead into the next century, leaders will be those who empower others."

Research a business leader whom you admire and answer the questions below.

Give a brief history of the business leader you have chosen.

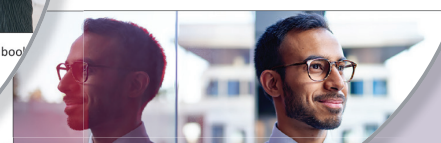
Describe five leadership characteristics of the person that you admire.

Explain the type of leadership style of this person and provide examples to support your answer.

Explain TWO achievements of your chosen leader.

Present your findings to the class.

References.



Links to current electronic resources increase lesson relevance.

Case Studies and practical learning tools build confidence.

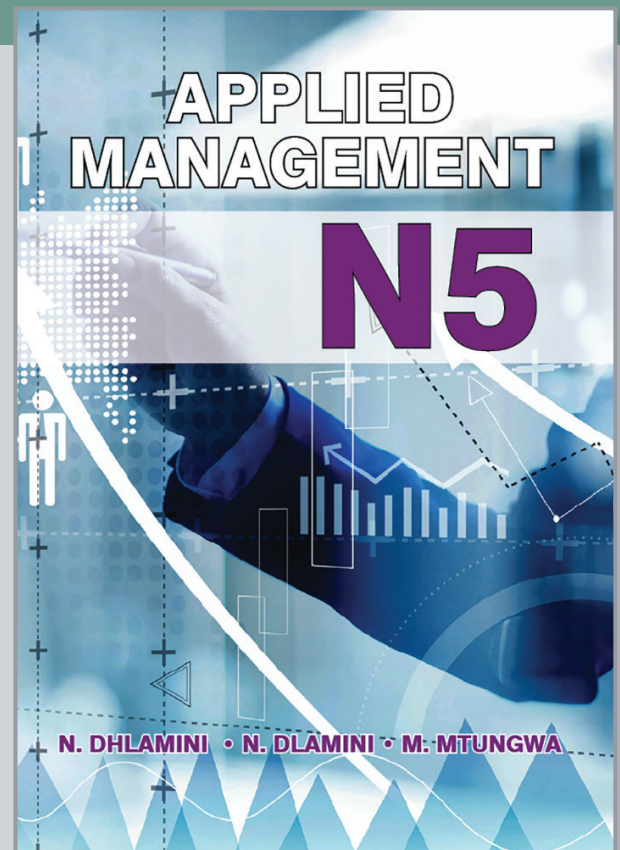
Practical component assignments to reinforce the theory.

9781485836445 APPLIED MANAGEMENT N4 STUDENT TEXTBOOK

APPLIED MANAGEMENT N5

Shuters Applied Management N5 builds on the knowledge gained by students who have completed Applied Management N4. The book will assist students to navigate the content of the latest syllabus for this subject, and further their knowledge of management in a tourism and hospitality context.

Examples, case studies and activities help students understand and master the subject content, and additional e-resources help to make the subject up-to-date and relevant.



THE 5: LEGAL ASPECTS OF THE FRONT OFFICE

Learning Outcomes

At the end of this module students will be able to:

- Explain the various ways in which a booking contract may come into being.
- Name the points to which the express terms normally contained in a contract of booking relate. Explain what significance a guest's contractual capacity to booking a contract may have.
- State and explain the three ways in which a contract of booking may end
- Apply the concepts studied in this theme to situations in the front office by means of a role play or simulated situation.
- List the information which must be provided in the notice displaying the price.
- Compile a typical notice displaying the price in residential establishments.
- Outline the main point of law concerning the registration of guests, with reference to the Immigration Act (13/2002)
- List the information required for all guests.
- Explain the common practice in the hospitality industry of overbooking.
- Evaluate the possible legal outcome of overbooking.
- Explain the rights and responsibilities of a hotelier and innkeeper.
- Explain the circumstances in which a guest's property can be refused to a guest and explain ejection of a guest from the premises.

Legal aspects examined.

Rights of the proprietor/hotelier



A **Hotelier** is a person who runs or owns a hotel.
An **Innkeeper** is the owner or manager of a hotel.

5.5.1 Services that can be refused to a guest, the ejection of a guest from the premises

Under common law, hotels must accept guests unless there is a reasonable basis for rejecting a guest. Innkeepers who refuse accommodation under the following circumstances are civilly or criminally liable to any guests or liable for any fine or penalty.

The innkeeper may refuse to accommodate a guest / traveller only when;

- The hotel is fully booked,
- The traveller is unwilling or unable to pay for rate quoted,
- The traveller is a minor unaccompanied by a parent or guardian,
- The traveller is disorderly,
- The traveller was previously ejected,

Rights and responsibilities of hoteliers.

Software used in hospitality establishments for reservations

Hotels use different software. The most common is OPERA.

6.6.3 Briefly state the features of the reservation form

The reservation form records of all the bookings made. This helps to update availability and to keep track of occupancy and expected occupancy. Each hotel has its own standard form which is normally electronic.

Reservation forms help to make sure that all the relevant information is recorded.

It is an active checklist for receptionists and reservationists to use.

It helps in the booking process.

It takes into account different factors.

Up-to-date practices explained and discussed.

Chain/Type	Property	Property Name	Avail.	Sched.	Location	Dist.
X CHA FULL	FSDH1	Property 1 Opera Demo	115	75	Columbia	
X CHA EXP	FSDH2	Property 2 Opera Demo	160	100	Nasles	
X CHA CAS	FSDH3	Property 3 Opera Demo	155	100	Las Vegas	
X CHA MF050		Opera Demo Hotel, Tim	0	0		

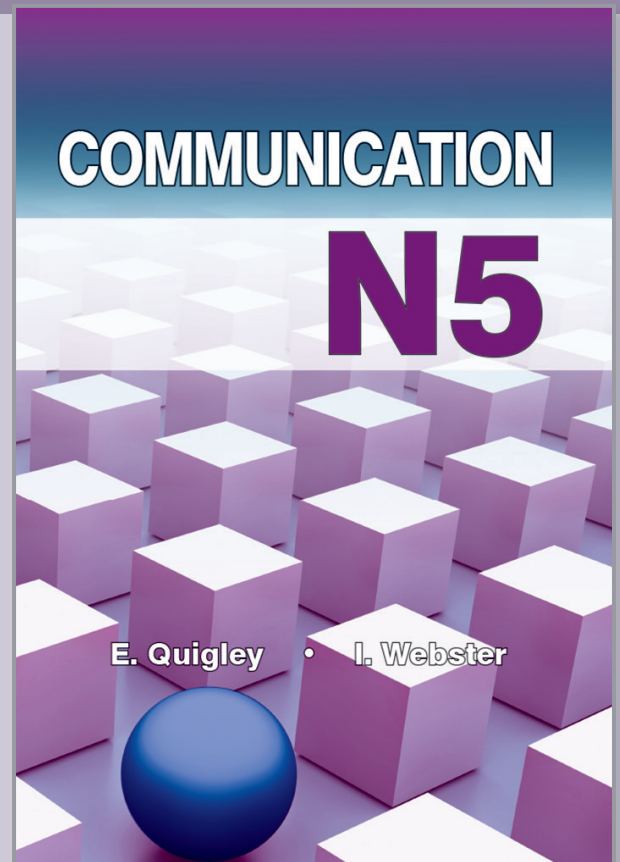
General	Features	City	Attraction	Alt. Prop.	Alt. Prop.	Passes
Property Name	Property 1 Opera Demo Multi Hotel	Region	NAM			
Address	11011 Columbia Gateway Drive	Country	USA			
City	Columbia	Base Language	E			
Phone	443-255-0000	Check In Time	03:00			
Fax	443-327-8967	Code	Room Type			
Toll free	800-543-8767	DLX	Deluxe Hong Kong			
E-Mail	reservations@opera.com	DLXQ	Deluxe Ocean			
Web page	WWW.OPERA.COM	SDC	Superior Ocean			
Current Time	06/13/08 11:08	SK	Superior King			
TZ Region	US/Eastern					

Specifications for good room reservation system are customisable, to fit any organisation's needs.

COMMUNICATION N5

Shuters Communication N5 has been designed to teach the theory behind communication principles as well as to equip the student with the skills necessary to function efficiently and professionally in the business world.

The student will learn about acceptable behaviour and business ethics that take place in the business world, and find ways to develop their own personality, skills and interpersonal relationships.



Case Study 2

ing article that contains manipulative rep

Covid Chaos on Campus!

Is your child's education in danger?

Although many Colleges have resumed lectures, it appears as though all students' lives are being put in danger by incompetence. Students are being exposed to Covid-19 on a daily basis, and nobody is doing anything about it!

Students are attending lectures with no social distancing and no sanitising. How can our young people's lives be put in danger like this? Now is the time for all



parents and students to and demand that things the safety of each a can be guaranteed be held.

Case Studies and practical learning tools.

also have disadvantages, as far check on the reliability of the information is sent to you.



Think about all the social media advertising on a daily basis. What does it tell you about the and do you think you are part of their target

Impact of information technology

ic communication can be written, in the form of What k posts. These could be interpersonal (between individuals) on behalf of an organisation. Many companies ha customers, and they send out SMSs or other messages t services.

ommunication not written

Extended learning offered in the 'Bright Idea' sections.

al differences which may ommunication

mentioned before, in South Africa we live in a diverse, multicultural advantages, but can also cause problems when communicating in the workplace of obvious cultural differences that you may encounter when you enter the as you study.



A good video on cultural differences from an Australian perspective

<https://www.youtube.com/watch?v=TWrhWTQXI6Y>

Activity 5

Watch the following video on bullying in the follow: <https://www.youtube.com/watch?v=TWrhWTQXI6Y>

ow does bullying manifest itself in the workplace?

What impact can it have on employees' health?

ould the impact of bullying be on the reputation of

management of an organisation, wh

workplace bullying?

Links to electronic resources widen the students' experience.

9781485838364

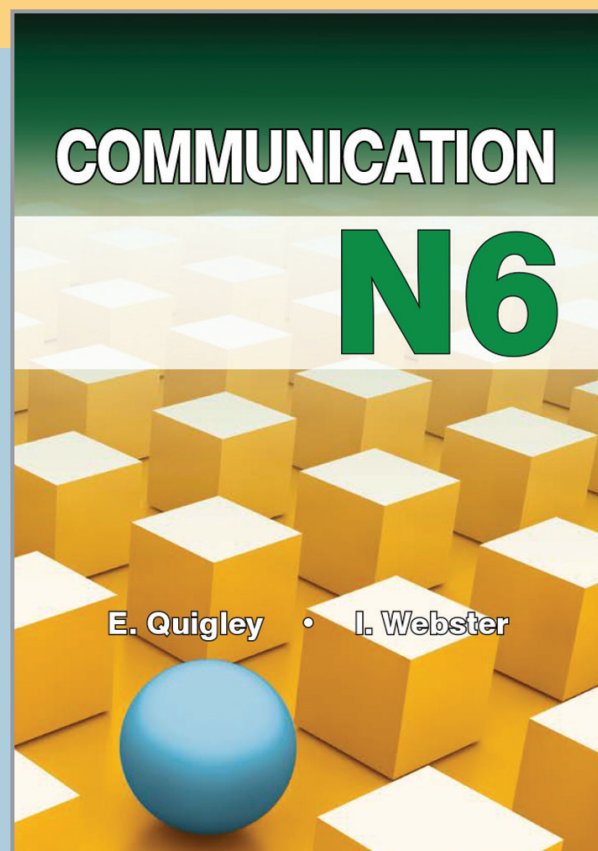
COMMUNICATION N5 STUDENT TEXTBOOK

COMMUNICATION

N6

Shuters Communication N6 introduces students to new communication concepts and adds greater depth to their existing knowledge gained during the study of N4 and N5. All the necessary correspondence from N4 and N5 is recapped and new correspondence is explained and practised.

Students will learn more about motivation, coping with stress in the workplace, acceptable business behaviour, and how to prepare themselves for the world of work. Real-life case studies and activities will help them gain greater self-knowledge and prepare them for their final examinations.



Activity 3

Consider the following scenarios, and give reasons or reasons for stress. Prepare

Targeted activities provide opportunities to reinforce new skills.

Scenario 1

Lesedi is working as a sales representative for a company. She is to go out to small shops and pharmacies, to encourage them to buy more products. She spends her days on the road, travelling from place to place to meet targets to meet, and will lose her bonus if they aren't met. She is stressed and helps her where possible. Why is Lesedi stressed?

Scenario 2

Mr. Mokoena is working as a shampooist in a hair salon. His numbers have dropped. When he is asked to take a grievance, both employer and employee are stressed.

Outlines action that can include fault and use of force.

of conduct behave. Each these rules.

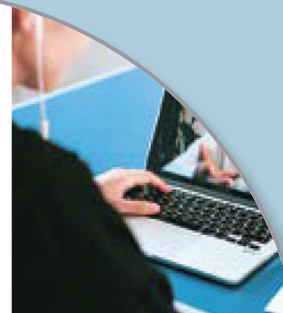


Discipline in the workplace is the behaviour that is expected of the employee. It includes obeying company rules, but also extends to job performance.

Disciplinary action is action taken by the employer to deal with an employee's job performance or behaviour with the aim of improving it.

or video interview

Interviews that are held online using video software such as Skype, Zoom or Microsoft Teams. Factors such as distance, and recently, the COVID-19 pandemic, have led to many interviews being held online using video software such as Skype, Zoom or Microsoft Teams.



Advantages

- It is cheap and convenient.
- Allows for body language and non-verbal communication to be seen.
- The interview can be recorded for future reference.
- It is less stressful for the interviewee, as they are in their own environment.

Disadvantages

- Technical issues can arise.
- Not everyone may have the know-how to use the technology.
- The applicant cannot see the interviewer other than the video feed in the background.
- Does not give the organization a chance to see the applicant in person.

Easy to find *Definitions* assist self-study.

Structured role-modelling supports practical experience.

981776314041

COMMUNICATION N6 STUDENT TEXTBOOK

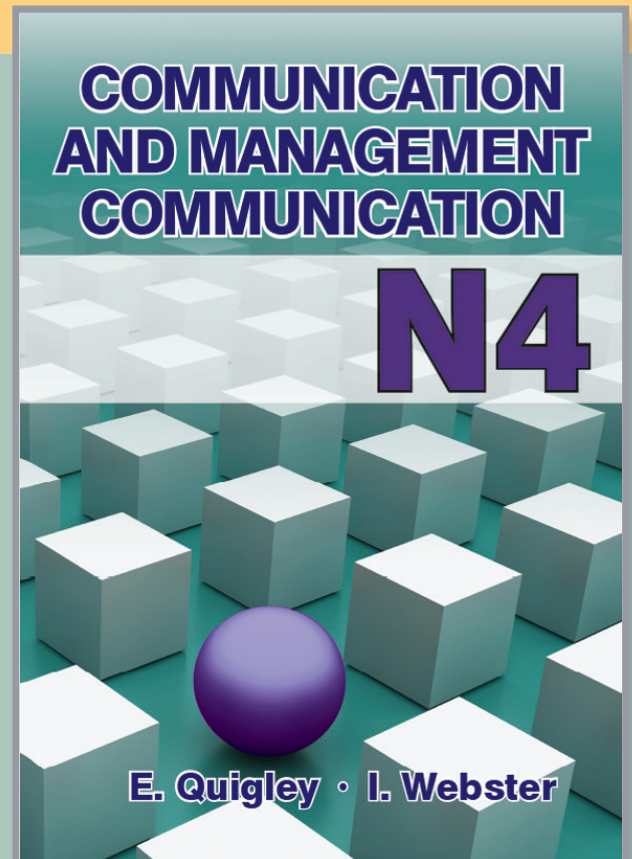
COMMUNICATION & MANAGEMENT COMMUNICATION N4

Communication and Management

Communication N4 is designed to teach students the theory behind communication principles as well as to equip them with the skills necessary to function efficiently and professionally in the business world.

Theory is explained using clear, easily understood language and graphics.

This book covers the syllabus for both Communication N4 and Management Communication N4.



Expanded examples encourage self-study.

Have you worked hard this week?
Do you need a well-deserved break?



Dolphin Lodge on the beautiful KZN South Coast at Port Edward is just the place for you to relax and unwind.

Picture yourself lying on a beautiful sunny beach, or relaxing next to our sparkling swimming pool while we take care of your holiday!

We are currently offering 25% off on our daily rate to the first 120 customers who phone us on our booking line 0800 123123. So don't delay, call us today for your holiday in the sun.

This, together with the photograph keeps the customer's interest and tells them what they should think about on the South Coast.

This creates a desire in the customer. They tell themselves Yes, I should picture myself exactly that!

This makes the customer take action. They phone us and book their holiday.

Sentences below so that the noun and pronoun agree.
My car lost his numberplate.

My brother is ill. Please give her these pills.

3. The bride looked beautiful in his wedding dress.

The aim of business writing is always to have a clear meaning. If the pronoun and its antecedent (the noun that went before the pronoun) are not clearly linked, then the meaning of the sentence will be unclear. Consider the following sentences:

1. Charles and Brian went back to his house for supper. Whose house did they go to? Case it is not clear.
2. The students met with the lecturers and they planned a field trip. Who planned the trip, the students or the lecturers?



A useful video to help you understand pronouns and how they should be used is found on the link below:

<https://www.youtube.com/watch?v=nkjKPhleQ5E>

Links to current electronic resources increase lesson relevance.

Sender – the person who is writing the letter.
Receiver – the person who will be reading the letter.
Letterhead – standard company stationery which includes the company logo, name, address, e-mail address and telephone number.



The tone of a business letter should always be formal, and look professional. Think of a business letter you have received, and look at its tone.

Case Study – a poor business letter

Dumisani Shange is writing to Body Style Fitness centre to complain about the bad attitude of the trainers. He tries to write a letter but needs your help to correct it. Check both the format of the letter and the language used and the spelling and grammar.

12 Azalea Road
KwaZulu-Natal

Terms are clearly defined, and Tips for learners are provided.

P & P Booksellers

Customer Orders Department
P & P Booksellers
28 Kloof Road
BELVILLE
7493

Our letter to us dated 10 January 2020, requesting information about Management Communication N4 Textbooks. We have checked our TVET catalogue which lists and describes each book. We will find an order form at the back of the catalogue with each book.

Books are in great demand, and we urge you to place your order now, while stocks last.

Thank you for choosing us as your preferred textbook supplier, and we wish you a successful year.

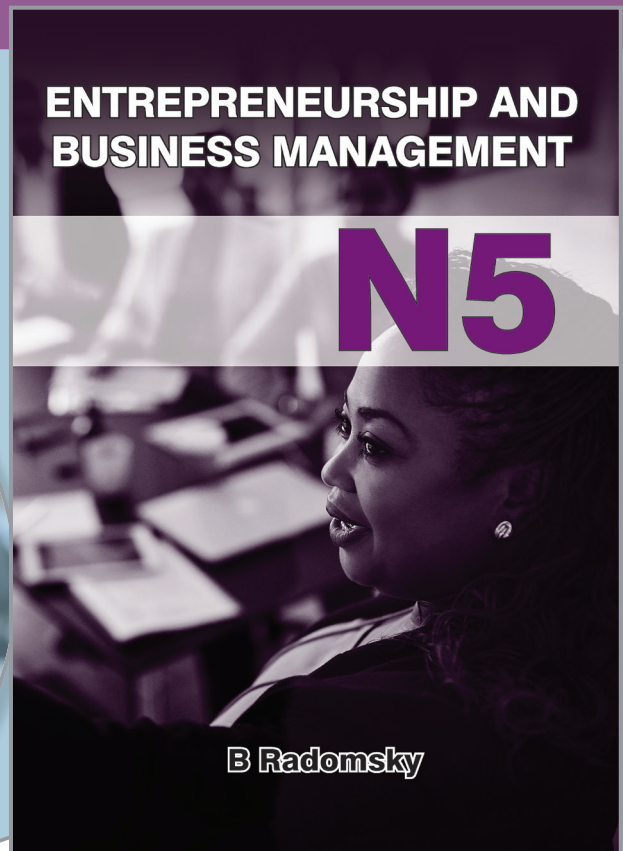
Different types of communications are 'unpacked' and labelled.

9780796075468

COMMUNICATION AND MANAGEMENT COMMUNICATION N4 STUDENT TEXTBOOK

ENTREPRENEURSHIP AND BUSINESS MANAGEMENT N5

Shuters Entrepreneurship and Business Management N5 takes real-world cases and examples to help students understand the world of business management and the challenges and rewards of entrepreneurship in a South African context.



Presenting tips and techniques

The golden rule before presenting and pitching to stakeholders is that the entrepreneur knows the business. The entrepreneur or entrepreneurial team to present should have a clear outline of the business and use effective visual aids to support the oral presentation to interested audiences.

Types of organisational structures

The type of organisation layout required will reflect on the type of business. The structure is a key to convey to the stakeholders of the business i.e. the workforce. Five common types of organisational structures used are listed below.

1. Hierarchical organisational structure

The pyramid-shaped organisational structure is the most common type and flows from the top of the business (e.g., the CEO or high-level managers) down to the bottom. The structure defines the level of authority and responsibility and is motivated by the fact that it can define career paths and opportunities for promotion.

Whilst this structure brings standardisation and accountability in the decision-making process, it can slow down innovation in a business because of the increased bureaucracy, and employees are more in the interest of their department than the company.

2. Functional organisational structure

Primarily the team are organised according to their specific skills and functions within the business, such as finance, marketing or manufacturing. This allows for specialization of roles and higher motivation as each functional department is managed by a specialist manager.

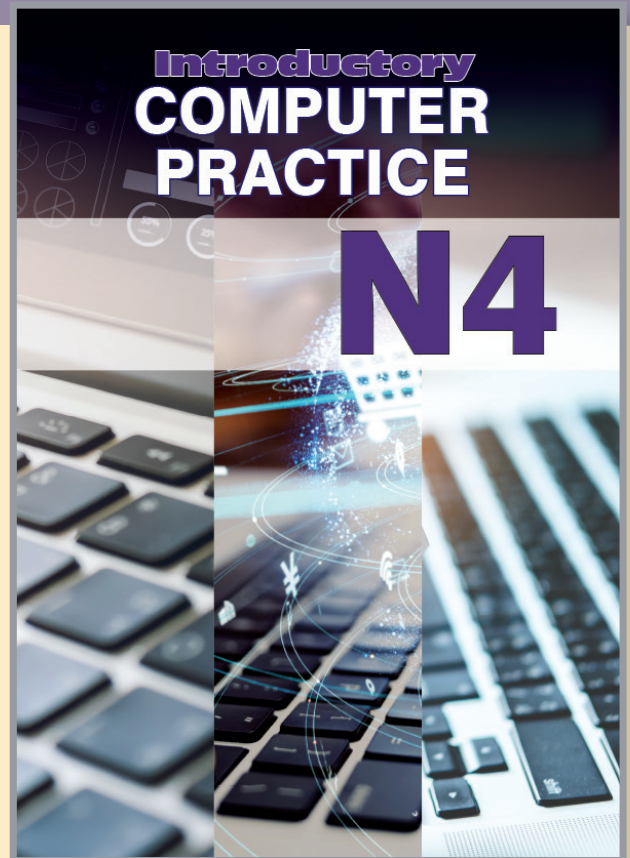
LECTURER GUIDE MATERIAL
IS AVAILABLE TO ACCESS
ELECTRONICALLY

9781779920256	SHUTERS ENTREPRENEURSHIP AND BUSINESS MANAGEMENT N5 STUDENT TEXTBOOK
9781776315437	SHUTERS ENTREPRENEURSHIP AND BUSINESS MANAGEMENT N5 LECTURER GUIDE

INTRODUCTORY COMPUTER PRACTICE N4

Shuters Introductory Computer Practice N4

provides a solid foundation for students on which they can build their further knowledge. Students will receive a thorough grounding in basic computer concepts, network and communication technology, information management and computational thinking, internet and communication skills. Digital citizenship and current IT issues are also highlighted and help students to act responsibly in a digital world. A comprehensive guide for the lecturer is also available to assist with resources, activities and assessment.



Explore and use the OS

Suggested Lesson time		90 minutes
Practice/Activity Review time		60 minutes

Time management tools for every unit.

By the end of this unit, you should be able to:

- Identify and name components of the OS desktop
- Outline the purpose of the desktop and the task bar
- Use the start button on the taskbar to gain access to other functions of the OS.
- Identify common icons and discuss their meaning such as: file icons, folder icons, drive icons, peripheral device icons, shortcuts, recycle bin, applications
- Open different windows
- Use two programs simultaneously in Windows and switch between the two.
- Identify the content of disks and folders in the content panel of Windows Explorer.
- Identify the file types correctly according to their extensions.
- Perform basic file management operations
- Use the Help function to solve problems
- Useable utility software

Digital citizenship

This topic covers the following:

- Unit 5.1 ICT impacts society at large
- Unit 5.2 Impact of the use of ICT on the environment
- Unit 5.3 Basic concepts of Cloud computing and digital presence

Introduction

Topic 5 looks at the importance of information and communications technologies in our lives, whether it be our social life or work life. We have become reliant on the comfort it brings to our lives. It affects nearly every aspect of our lives. It not only impacts our lives but also has an impact on the environment. As citizens in the 21st century it is vital that we look at ways of recycling and introducing green computing. We also look at the basic concepts of digital citizenship as on the way we interact with technology. Although digital citizenship is also areas of concern especially around security and privacy. It is crucial to online activity as there are various threats to our data and your data stolen.

UX issues examined and discussed.



Interesting information

Connectivity technology refers to a feature or service provided in a device like a computer that enables the device to connect with other devices and systems.

There are two types of connectivity technology:

1. Wireless – Wi-Fi and Bluetooth
2. Wired – USB, network cable, HDMI cable

E-resources such as YouTube videos and websites are provided.



Fig 4.2 Connectivity in computing drives communication between various elements

Unit 4.3 Describe the term www



The World Wide Web

Watch this excellent and detailed video.

URL: <https://www.youtube.com/watch?v=guvsh5OFizE>



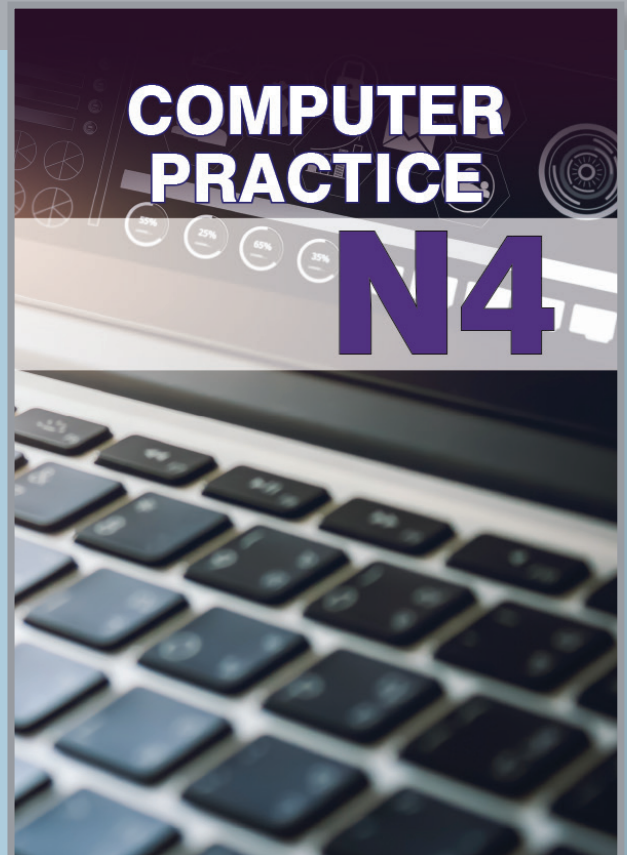
Most popular use of the Internet is the use of the World Wide Web (www) which consists of web pages that link to each other using hyperlinks. These links connect related information and that is where the term "World Wide Web" comes from.

9781485836544

INTRODUCTORY COMPUTER PRACTICE N4
STUDENT TEXTBOOK

COMPUTER PRACTICE N4

Shuters Computer Practice N4 builds on the foundation created by **Introductory Computer Practice**. It takes students to a more complex level of computer concepts, network and communication technology, information management and computational thinking, internet and communication skills and digital citizenship. This textbook is a 'one-stop-shop' for both lecturer and student as it contains all the resources needed to successfully master the contents of this subject.



Global digital threats explored and discussed.

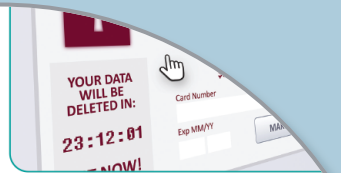


Figure 5.4 Ransomware is a type of virus that unlawfully locks data and demands payment from the owner before it gets unlocked again.

Denial of service (DoS)

Denial of service attacks stop users from being able to access computer programs and websites. These illegal attacks work by making so many requests to a server for a resource that the server can't cope and stops working correctly. Hackers often use botnets and zombies to carry out DoS attacks. Hackers could use your computer in this way without your knowledge! Do you see how essential anti-virus software is?

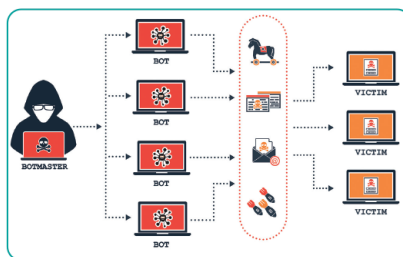


Figure 5.5 This kind of hacker, called a botmaster, controls bots that attack others' computers and systems.

Botnets test your understanding (Individual)

- Carry out the following functions of an OS:
- Hardware management
 - Memory management
 - Disk management
 - Graphics User Interface (GUI) management
 - Program management
- Explain why you should always log off your computer when you are done using it. Your explanation should include the role of a user profile.
 - List and explain the use of three different types of operating systems.

Activity 1.7 Review (Individual)

Test your knowledge regarding what you have learned so far by completing Question 2 and 3 of the following exam paper:

<https://learn.mindset.africa/sites/default/files/resource/lib/emshare-exam-resource/9342.pdf>
For more exercises to review what has been covered so far see here: https://drive.google.com/open?id=16E1x7Bxizk1SMmrjFUubqX_XGLFy-Pzb

Assessment 3

Test yourself!

Typical functions of the OS?
Users and user profiles?

Full range of self study and assessment tools.

Visual aids assist student to gain a fuller understanding.



Figure 1.18 The hard drive of a computer is used to store files and hardware.

Figure 1.19 The power supply of a computer supplies it with electricity.

Figure 1.20 The graphics card controls what is displayed on the monitor.

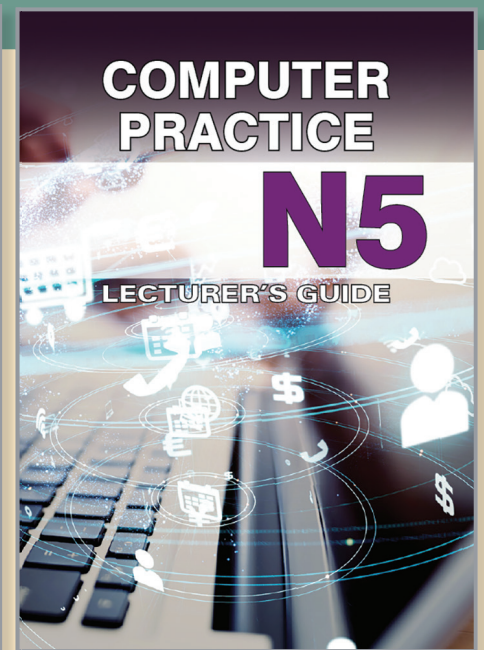
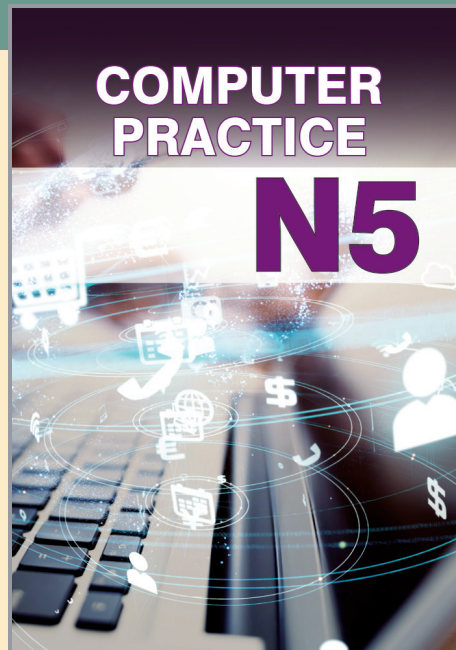
COMPUTER PRACTICE N5

Shutters Computer Practice

N5. In N4 the different aspects of computer practice were divided into five topics. These are further explored in N5.

The final examination for this subject will consist of two sections: Section A (theory) and Section B (practical) which must be completed using a computer.

An aim of the course is to promote problem-solving skills alongside the technical abilities to use the software packages.



Measurable
progression, and
extended learning
tools throughout.

Practical activities reinforce student experience.

Unit 2 ICT and the impact on the economy

Suggested Lesson time		45 minutes
Practice/Activity Review time		15 minutes

definition of cybercrime

Most cases computer networks and Internet play an integral part in the that is committed.



Cybercrimes are crimes carried out by means of a computer.

Cybercrime legislation

In South Africa cybercrime is addressed by the Electronic Communications and Transactions Act. The act can be found at: <https://www.etc.gov.za>

Activity 5.6 (30–45 min)

Move the page to be the last page before the Possible Exam Questions page.
Activity 5.3 and 5.4.

3. Open the text file "Dracula.txt" by double clicking the file in Windows. The file should open with Notepad or the associated application on your computer.
4. Copy the content of the file and paste the content into a new container. The container contains the first few paragraphs of the 1897 novel Dracula by Bram Stoker.
5. Do these changes:
 - a. Centre the heading "CHAPTER 1" and apply the style Heading 1 to it.
 - b. Underline the sub-heading "JONATHAN HARKER'S JOURNAL" and apply the style Heading 2 to it.
 - c. Format the text "I kept in shorthand." to be italics (use the keyboard shortcut: **Ctrl+I**).
 - d. Consider the text starting at "_ 3 May. Bistritz" to the end. Insert paragraph markers (hard enters) for the text to flow properly. There must be a paragraph for each day. Apply spell checking to the whole text. Instruct the spell checker to ignore words that are not found in the dictionary.

9781485838302

COMPUTER PRACTICE N5 STUDENT TEXTBOOK

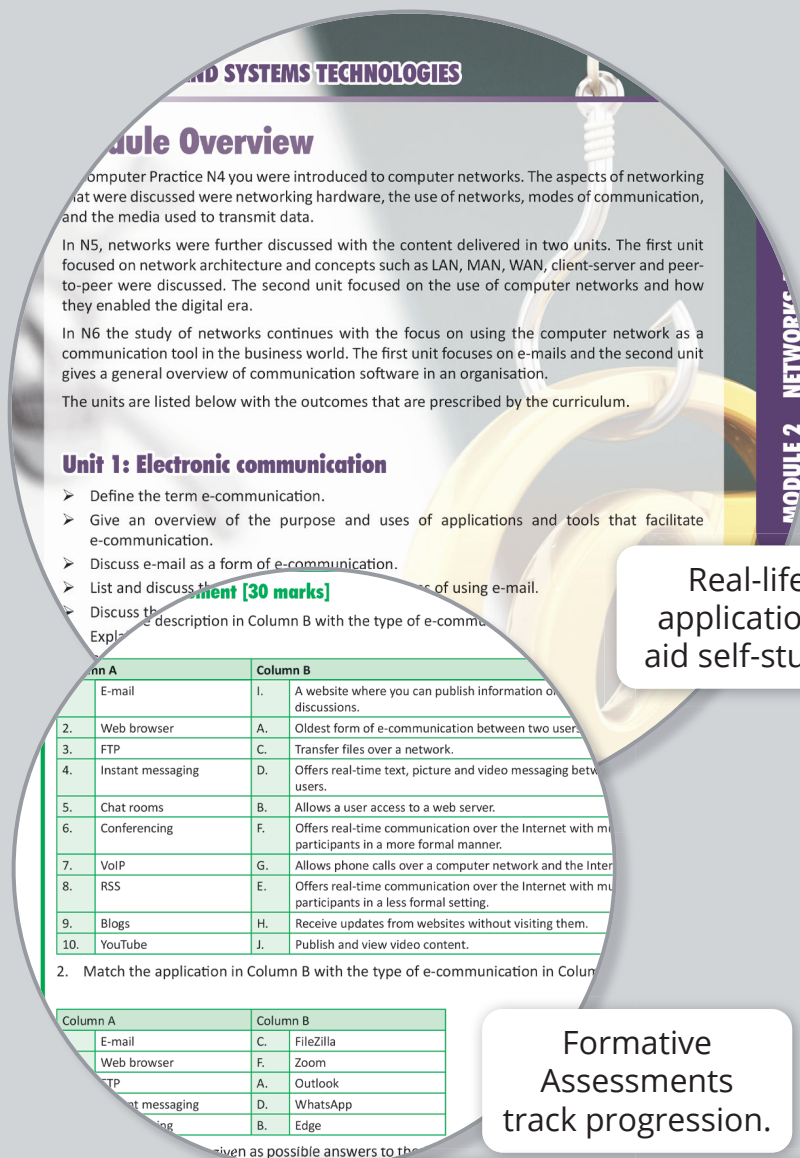
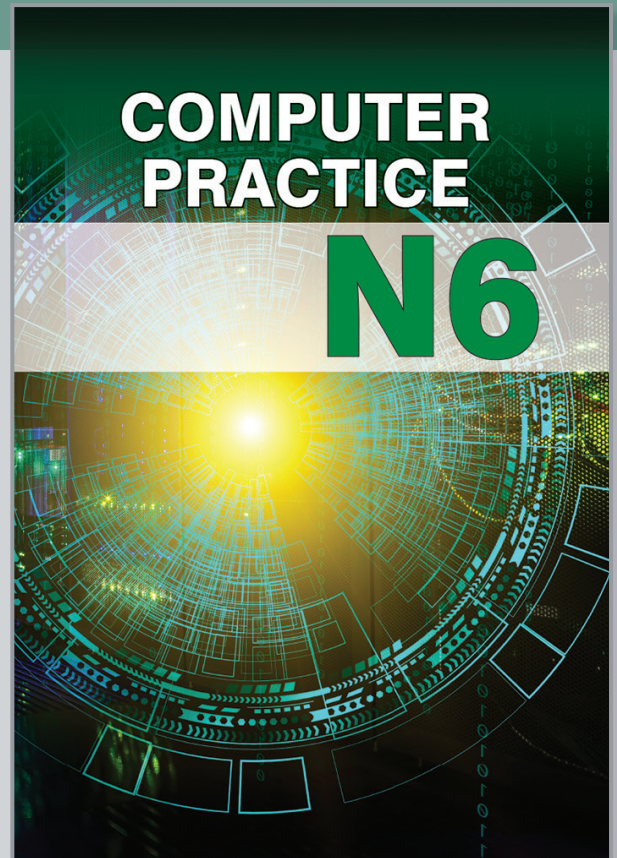
9781485838463

COMPUTER PRACTICE N5 LECTURER GUIDE

COMPUTER PRACTICE N6

Shuters Computer Practice N6 separates the Section A (theory), from Section B (practical application topics). The final mark obtained in the subject has two components – a semester mark and a final examination mark. The semester mark consists of a practical mark, a test mark and an internal examination mark.

The practical assessment task (PAT) is prescribed for the course. It consists of numerous exercises and activities embedded in a single topic or project. Each topic ends with activities directed towards the PAT.



Real-life applications aid self-study.

Formative Assessments track progression.

PATs provide prescribed skills measurements.

Activity 5 (20–30 min)

Represent the activities required to complete the PAT.

Solution 5

- Analyse the problem statement and scope of the PAT.
- Plan the PAT.
- Internet research:
 - Composition of educational YouTube videos.
 - Characteristics of popular educational YouTube videos (based on views).
 - Tips and procedures for creating and maintaining a YouTube channel.
 - Tips and procedures for creating and maintaining a blog.
 - Find the syllabus (CAPS) for mathematics Grades 7–9.
 - Find free mathematics textbooks for Grades 7–9.
 - Find a suitable template for drafting a business plan.
 - Find suitable templates for the financial documents.
- Analyse the main components of the plan to produce a video.
 - Create a list of content to present on YouTube and prepare a script.
 - Create an online blog site for the project.

Module Overview

In Computer Practice N4 you were introduced to computer networks. The aspects of networking that were discussed were networking hardware, the use of networks, modes of communication, and the media used to transmit data.

In N5, networks were further discussed with the content delivered in two units. The first unit focused on network architecture and concepts such as LAN, MAN, WAN, client-server and peer-to-peer were discussed. The second unit focused on the use of computer networks and how they enabled the digital era.

In N6 the study of networks continues with the focus on using the computer network as a communication tool in the business world. The first unit focuses on e-mails and the second unit gives a general overview of communication software in an organisation.

The units are listed below with the outcomes that are prescribed by the curriculum.

Unit 1: Electronic communication

- Define the term e-communication.
- Give an overview of the purpose and uses of applications and tools that facilitate e-communication.
- Discuss e-mail as a form of e-communication.
- List and discuss the uses of e-mail.
- Discuss the description in Column B with the type of e-communication.

Column A	Column B
1. E-mail	I. A website where you can publish information or have discussions.
2. Web browser	A. Oldest form of e-communication between two users.
3. FTP	C. Transfer files over a network.
4. Instant messaging	D. Offers real-time text, picture and video messaging between users.
5. Chat rooms	B. Allows a user access to a web server.
6. Conferencing	F. Offers real-time communication over the Internet with multiple participants in a more formal manner.
7. VoIP	G. Allows phone calls over a computer network and the Internet.
8. RSS	E. Offers real-time communication over the Internet with multiple participants in a less formal setting.
9. Blogs	H. Receive updates from websites without visiting them.
10. YouTube	J. Publish and view video content.

Column A	Column B
E-mail	C. FileZilla
Web browser	F. Zoom
FTP	A. Outlook
Instant messaging	D. WhatsApp
Chat rooms	B. Edge

9781776314362

COMPUTER PRACTICE N6 STUDENT TEXTBOOK

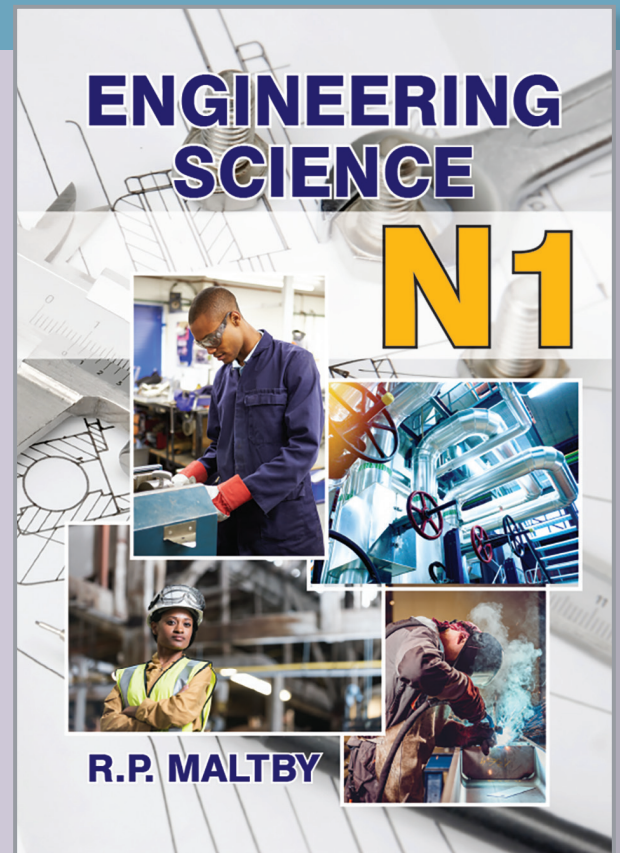
9781776314423

COMPUTER PRACTICE N6 LECTURER GUIDE

ENGINEERING SCIENCE N1

This series covers Engineering Science for levels N1, N2, N3 and N4 was written by subject expert, Richard Maltby, these books contain simple and clear explanations of all Engineering Science concepts.

Shuters Engineering Science N1 includes worked examples, exercises and solutions to assist students in mastering all the skills and knowledge needed to succeed in Engineering Science.



...us clear, simple explanations, worked examples and exercises will help you gain the knowledge needed for N1 Engineering Science.

IMPORTANT INFORMATION

Preferred SI prefix	Factor in words	SI prefix	SI symbol
Factor			
1 000 000 000 000 000 000 or 10^{18}	trillion	exa	E
1 000 000 000 000 000 or 10^{15}	billiard	peta	P
1 000 000 000 000 or 10^{12}	billion	tera	T
1 000 000 000 or 10^9	milliard	giga	G
1 000 000 or 10^6	million	mega	M
1 000 or 10^3	thousand	kilo	k
0,001 or 10^{-3}	thousandth	milli	m
0,000 001 or 10^{-6}	millionth	micro	μ
0,000 000 001 or 10^{-9}	millionth	nano	n
0,000 000 000 001 or 10^{-12}	billionth	pico	p
0,000 000 000 000 001 or 10^{-15}	billiardth	femto	f
0,000 000 000 000 000 001 or 10^{-18}	trillionth	atto	a

The Greek alphabet

Letter

alpha
beta
gamma
delta
epsilon
zeta
eta
theta
iota
kappa
lambda
mu

Lower case

α
 β
 γ
 δ
 ϵ
 ζ
 η
 θ
 ι
 κ
 λ
 μ
 ν
 ξ
 \omicron

Upper case

α
 β
 γ
 δ
 ϵ
 ζ
 η
 θ
 ι
 κ
 λ
 μ
 ν
 ξ
 \omicron

Example 8.1

Find the current flowing through a conductor with a resistance of 8 ohms and a potential difference of 120 volts.

$$I = \frac{V}{R}$$

$$= \frac{120}{8}$$

$$I = 15 \text{ A}$$

Example 8.2

Calculate the potential difference needed for a current of 7,5 amperes to flow through a conductor with a resistance of 32 ohms.

$$I = \frac{V}{R}$$

$$V = I \times R$$

$$= 7,5 \times 32$$

$$V = 240 \text{ V}$$

Example 8.3

An electrical appliance requires a current of 18 A connected to a mains supply of 240 V. Calculate the resistance of the appliance.

$$I = \frac{V}{R}$$

$$R = \frac{V}{I}$$

$$= \frac{240}{18}$$

$$R = 13,33 \Omega$$

Important information is provided at the start of each book.

Worked examples show how theory is applied.

Theory is supported by clear and simple diagrams.

9781485834267 ENGINEERING SCIENCE N1 STUDENT TEXTBOOK

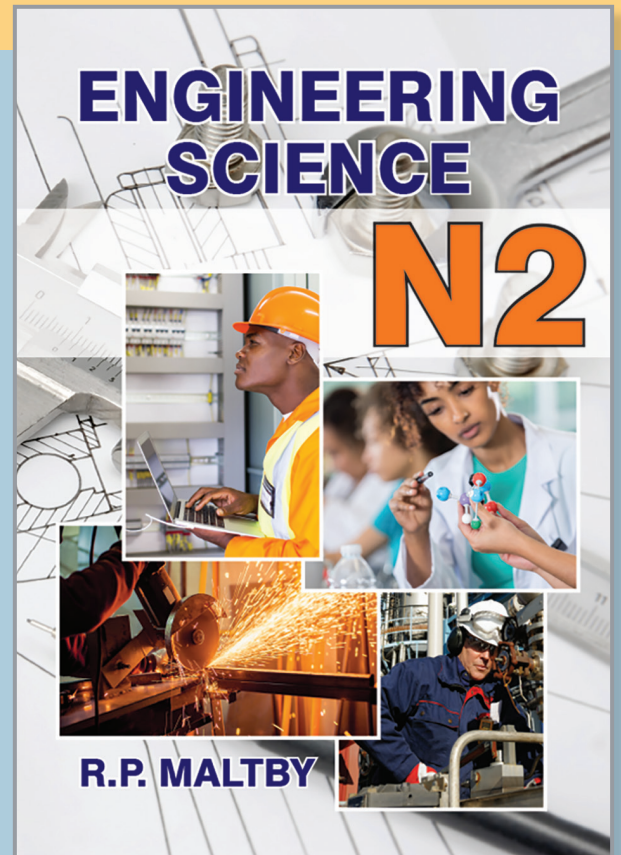
SOLUTIONS for the Engineering Science series are available online.

ENGINEERING SCIENCE

N2

This series covers Engineering Science for levels N1, N2, N3 and N4 was written by subject expert, Richard Maltby, these books contain simple and clear explanations of all Engineering Science concepts.

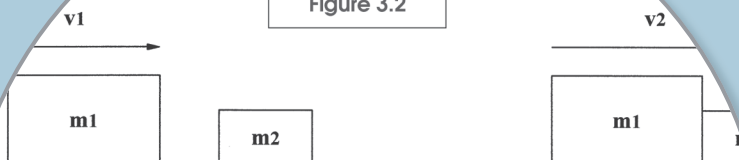
Shuters Engineering Science N2 includes worked examples, exercises and solutions to assist students in mastering all the skills and knowledge needed to succeed in Engineering Science.



3.6 COLLISION OF BODIES

body collides with a body at rest, then they both move off at

Figure 3.2



momentum before impact = momentum after impact
 $m_1 v_1 = v_2 (m_1 + m_2)$

EXAMPLE 3.6

A mass of 60 kg travelling at a velocity of 20 m/s, collides with a mass of 40 kg travelling at a velocity of 10 m/s. Calculate the common velocity after contact.

$$m_1 v_1 = v_2 (m_1 + m_2)$$

$$v_2 = \frac{m_1 v_1}{m_1 + m_2}$$

$$= \frac{60 \times 20}{60 + 25}$$

$$v_2 = 14,11 \text{ m/s}$$

moving in opposite directions.

move in the d

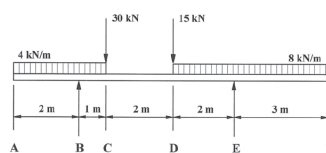
Tutorial material
is supported with
worked examples.

EXERCISE 2

20 shows a light horizontal beam **ABCDE** of a uniform cross-section, loaded as shown. Calculate the forces **B** and **E** and verify your answers.

b) Draw a shear force diagram and indicate all the main values on the diagram.

Figure 2.20



2.2

A beam is 4 m long and is supported at the left end and 1 m from the right end of the beam. There is a uniformly distributed load of 120 N/m placed between the two supports. A point load of 300 N is placed on both ends of the beam and a 200 N load is placed in the middle of the beam.

- Calculate the reactions at the supports.
- Draw a shear force diagram of the beam.

(Use a scale of 1 cm = 0.12 m for the x-axis and 1 cm = 100 N on the y-axis)

A beam is 5 m long and carries a uniformly distributed load of 10 kN/m along a length of 3 m from the right end. The beam also carries a concentrated load of 20 kN, 1 m from the left end. The beam is supported at its ends.

Calculate the reactions at the two supports and verify your answers.

... simply supported beam.

... is moved from one position to another. A ...
... es work to be done in order to move the vehicle.
... certain time, then the work done divided by the time ta...

force moves in the direction in which the force acts, then the product of the force and the distance that the force has moved is

Work done = Force x distance

$$W = F \times s$$

Where: W = Work done (J) or (kJ)

F = Force (N) or (kN)

s = distance (m)

Rule (J).

when the point of application of a force of one newton

$$1\text{ J} = 1\text{ N} \times 1\text{ m}$$

$1 \text{ J} = 1 \text{ N}\cdot\text{m}$

Exercises test the application of knowledge at different levels.

Tutorial material
reinforces key concepts.

9781485834274 | ENGINEERING SCIENCE N2 STUDENT TEXTBOOK

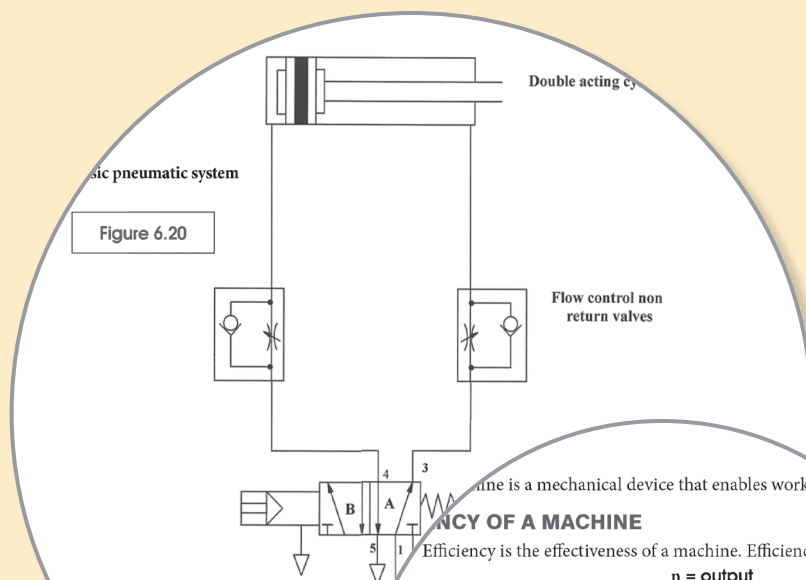
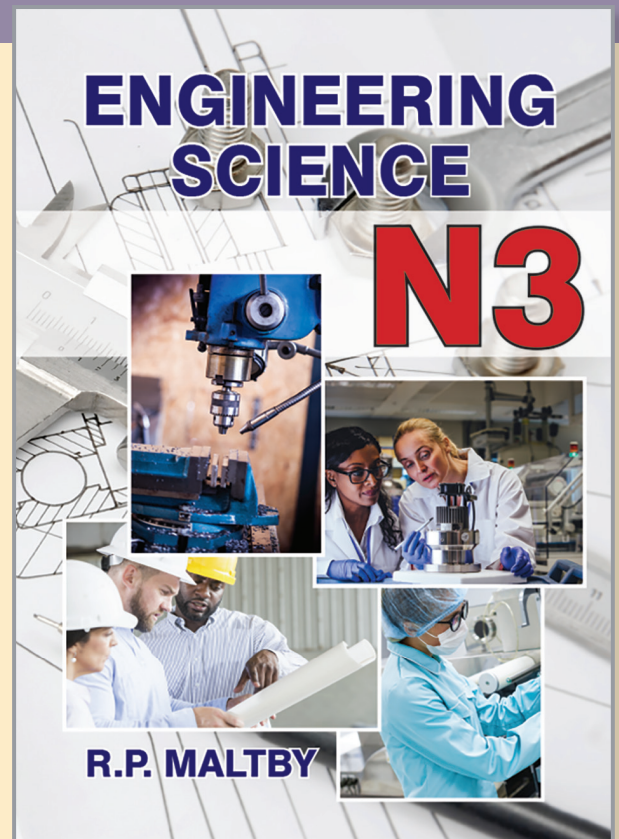
SOLUTIONS for the Engineering Science series are available online.

ENGINEERING SCIENCE

N3

This series covers Engineering Science for levels N1, N2, N3 and N4 was written by subject expert, Richard Maltby, these books contain simple and clear explanations of all Engineering Science concepts.

Shuters Engineering Science N3 includes worked examples, exercises and solutions to assist students in mastering all the skills and knowledge needed to succeed in Engineering Science.



DEFINITION OF A MACHINE

Efficiency is the effectiveness of a machine. Efficiency is the ratio of

$$\eta = \frac{\text{output}}{\text{input}}$$

MECHANICAL ADVANTAGE OF A MACHINE

The mechanical advantage (MA) of a machine is the ratio of the load to

$$MA = \frac{\text{Load}}{\text{Effort}}$$

VELOCITY RATIO OF A MACHINE

The velocity ratio of a machine is the ratio of the distance moved by the load in the same time.

$$VR = \frac{\text{Effort distance}}{\text{Load distance}}$$

When mechanical advantage, velocity ratio and efficiency.

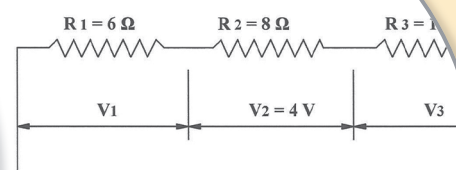
$$\text{Efficiency} = \frac{\text{Mechanical advantage}}{\text{Velocity ratio}}$$

$$\eta = \frac{MA \times 100}{VR}$$

Theory is supported by clear, simple diagrams.

Comprehensive Glossary provides support for self-study.

SOLUTION TO EXERCISE 7.1



$$\begin{aligned} R_T &= R_1 + R_2 + R_3 \\ &= 6 + 8 + 10 \\ R_T &= 24 \, \Omega \end{aligned}$$

$$\begin{aligned} V_2 &= I \times R_2 \\ I &= \frac{V_2}{R_2} \\ &= \frac{4}{8} \\ I &= 0.5 \, A \end{aligned}$$

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9781485834281 | ENGINEERING SCIENCE N3 STUDENT TEXTBOOK

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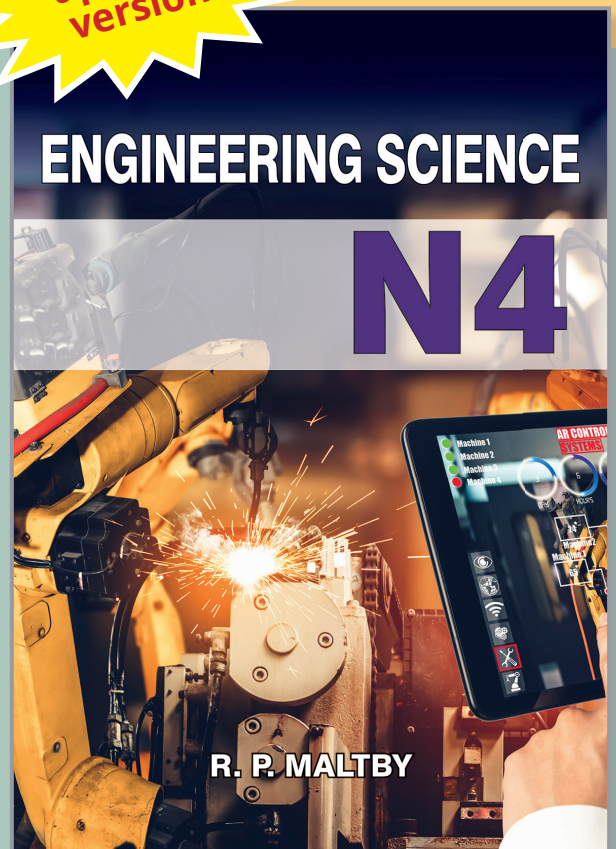
ENGINEERING SCIENCE

N4

New
updated
version

This series covers Engineering Science for levels N1, N2, N3 and N4 was written by subject expert, Richard Maltby, these books contain simple and clear explanations of all Engineering Science concepts.

Shuters Engineering Science N4 includes worked examples, exercises and solutions to assist students in mastering all the skills and knowledge needed to succeed in Engineering Science.



ANGULAR MOTION

DEFINITION

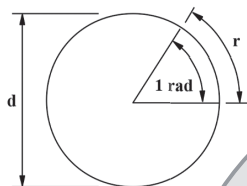
Angular motion occurs when an object moves in a circular path. Examples of angular motion are the rotation of a wheel and the movement of drive pulleys.

When solving problems involving rotational movement, we use variables that are similar to linear variables (displacement, velocity, acceleration and force) but take into account the curvature of rotation or motion. We define the angle of rotation, which is the angular equivalence of distance and angular velocity is the angular equivalence of linear velocity.

THE RADIANT

The radian is the angle subtended at the centre of a circle by an arc equal to the length of the radius.

Figure 2.1



The circumference of a circle has a length of πd or $2\pi r$.

If an arc has an arc length of r , so, in a circle, the number of radians in the arc is:

$$1 \text{ circumference} = 2\pi r$$

$$\text{radian} = \frac{\text{circumference}}{\text{radius}}$$

EXAMPLE 5.11

A weighted hydraulic accumulator has a ram diameter of 50 mm. Calculate the hydraulic pressure generated.

$$p = \frac{W}{A}$$

$$= \frac{mg}{A}$$

$$= \frac{4mg}{\pi d^2}$$

$$= \frac{4 \times 25 \times 9,8}{\pi \times 0,3^2}$$

$$p = 3\,466 \text{ kPa}$$

EXAMPLE 5.12

Calculate the work that may be done by water from a dam that is 100 m above the turbine. The internal diameter of the pipe leading to the turbine is 1 m. The density of water is $1\,000 \text{ kg/m}^3$ and gravitational acceleration is $9,8 \text{ m/s}^2$.

$$V = \frac{\pi d^2 h}{4}$$

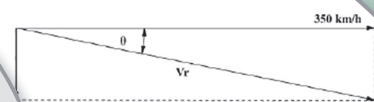
$$= \frac{\pi \times 1^2 \times 100}{4}$$

$$V = 78,54 \text{ m}^3$$

$$m = \rho V$$

$$= 1\,000 \times 78,54 \times 10^{-3}$$

SOLUTIONS EXERCISE 1.3



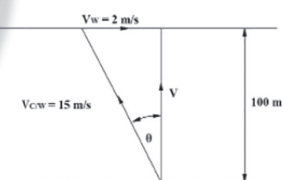
$$Vr^2 = 350^2 + 50^2$$

$$Vr = \sqrt{350^2 + 50^2}$$

$$Vr = 353,55 \text{ km/h}$$

$$\tan \theta = \frac{50}{350}$$

$$\theta = 8,13^\circ$$



$$Vcw^2 = Vw^2 + V^2$$

$$V^2 = Vcw^2 - Vw^2$$

Tutorial material
presented in
accessible language.

Worked examples show
how theory is applied.

Full Solutions are provided FREE,
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ENGINEERING SCIENCE N4 STUDENT TEXTBOOK

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MECHANOTECHNICS N4

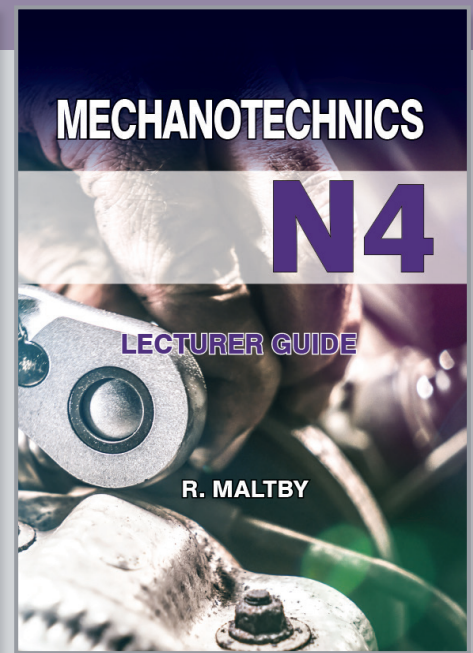
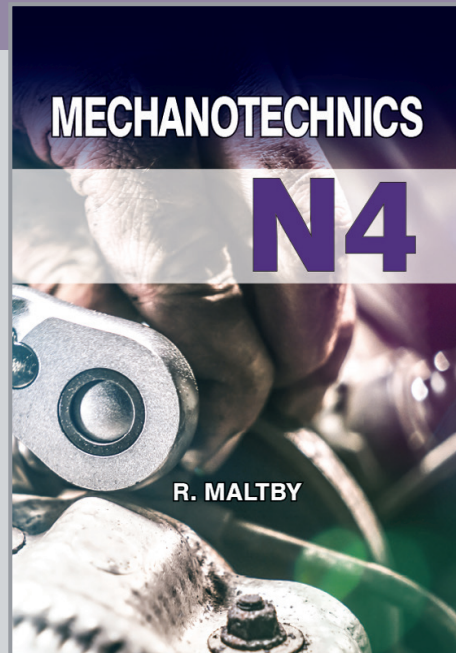
Shuters Mechanotechnics

N4 introduces students to workshop procedures and processes, and teaches students the basic principles of mechanical engineering.

The book is written in accessible language to help students understand the main concepts in each module, and then, through worked examples, shows them how to apply the theoretical knowledge to practical calculations.

Finally students are given exercises to complete to practise the calculations.

The *Lecturer Guide* provides a teaching plan and a lesson plan template. A list of useful e-resources are provided for each module, to assist the lecturer in planning each lesson.



Lecturer Guide provides a teaching plan and a lesson plan template.

N4. Please note that the actual teaching revision of problem sections and examination

Group Activity:
Using your workshop layout plans from your previous group activity, now draw a 3-D plan of your factory floor.

For more information on computerised 3-D layouts, have a look at:
<https://www.youtube.com/watch?v=k9ST6S8pGWg> and
<https://www.youtube.com/watch?v=8MeHLOj-oKE>

1.10 LAYOUT PROCEDURES

There are many steps involved in the procedure for planning a workshop or production factory. Some of these steps are:

Step 1. Accumulate Basic Data
(a) Volume and rate of production.
(b) Product specification and bill of material.
(c) Process sheets including tools, equipment, the method and the product which will be manufactured.
(d) Flow process charts.
(e) Standard time to complete each operation, etc.

Step 2. Analyse and Coordinate Basic Data
Required in order to find:
The workforce size and type.
The number of work stations required.
The number of equipment required.
The other space requirements.

Step 15. Install the Approved Layout
Make detailed plans for installing production, service and other centres. Install equipment, machinery, work benches, offices, etc.

Step 14. Get Official Approval of the Final Layout
After the final plant layout has been checked, it is generally approved and signed by the team which checked the final layout.
A final layout accompanies:
(a) Product drawings.
(b) Bill of material (parts list)

TEN WEEK TEACHING PLAN

WEEK	M	T	W	T	F	MODULE
1	X	X	X			Workshop layout. Types of production. Factory Layout Handling of materials. Students must be able to draw the different diagrams of layout etc. Issue Exercise 1
1				X	X	Metal protection. Identification of different types of corrosion. Anti-corrosion tests. Surface preparation. Diagrams of painting methods. Issue Exercise 2
2	X	X	X			Lubrication. Classification of lubricants. Hydrostatic and hydrodynamic lubrication. List factors that should be considered when choosing a lubricant. Draw and label lubrication devices. Issue Exercise 3
2				X	X	Precision measurement of machine parts. Name and describe the different items used, sine bars, rollers etc. Solve examples on board. Describe the one, two, and three wire methods of measuring threads. Solve examples on the wire methods. Issue Exercise 4
3	X	X				Discuss the advantages and disadvantages of gear drives Draw and describe all gear terminology, module, circular pitch, addendum, dedendum etc. Calculations on simple and compound gear drives. Solve examples on these drives. Issue exercise 5.1 Epicyclic gears. Discuss the different applications of epicyclic systems. List advantages and disadvantages of epicyclic trains. Go to great lengths to explain how the calculations are done. Students find this difficult, so more time than usual is required
3			X	X	X	Belt drives. Draw and describe flat belt drives. Crossed belts, calculations and state where used. Explain diameter, velocity ratio, belt length, arc of contact. Tension transmitted. Belt tensions. Solve examples on the exercise 5.1
	X	X	X			Chain belt drives, advantages and disadvantages

E-resources (YouTube videos and websites) are provided.

9781485836346

MECHANOTECHNICS N4 STUDENT TEXTBOOK

9781485836353

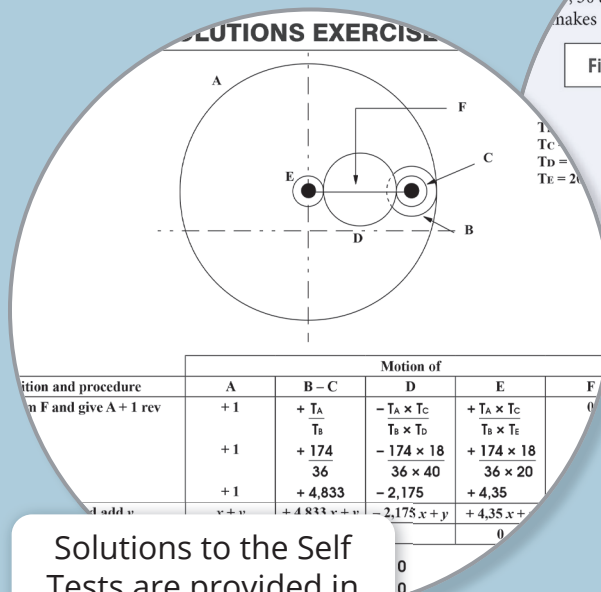
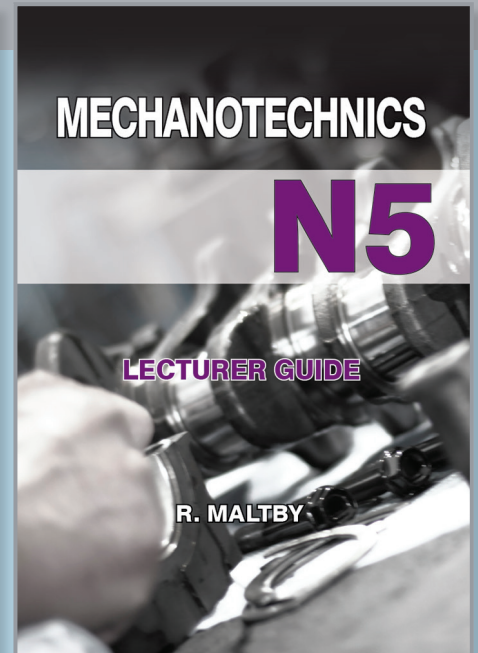
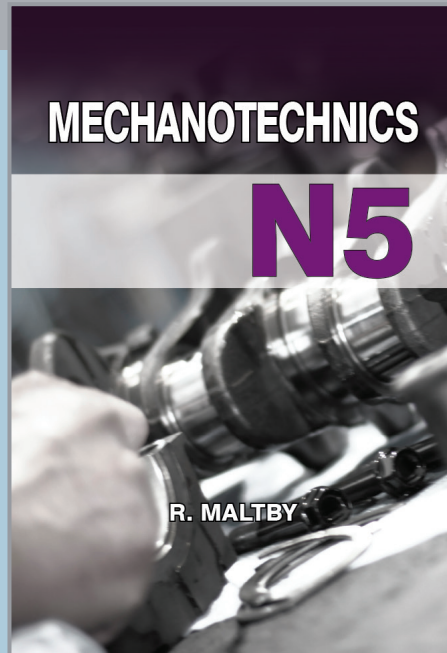
MECHANOTECHNICS N4 LECTURER GUIDE

MECHANOTECHNICS N5

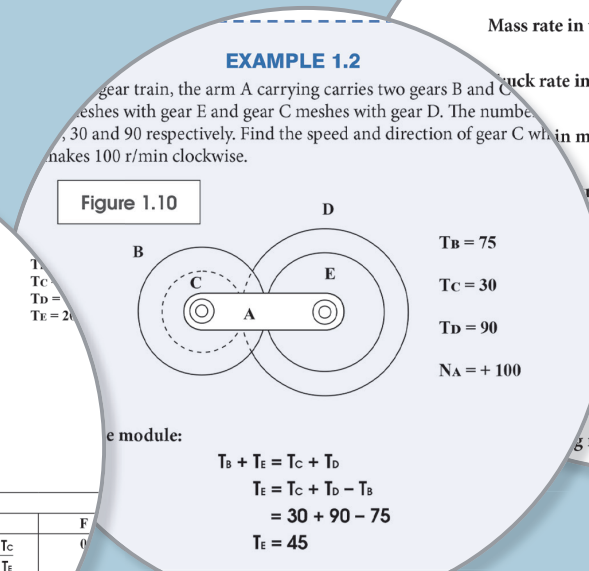
Shuters Mechanotechnics N5

builds on the introduction given in **Shuters Mechanotechnics N4**. Students continue to practise workshop procedures and processes, and reinforce the basic principles of mechanical engineering. Worked examples throughout the book shows students how to apply the theoretical knowledge to practical calculations. Progressive exercises enable students to practise concepts.

The *Lecturers Guide* provides a teaching plan and a lesson plan template. A list of useful e-resources (videos and websites for example) are provided for each module, as lesson planning aids.



Solutions to the Self Tests are provided in the *Lecturer Guide*.



Worked Examples with labelled diagrams build student confidence and support self-study.

5.7 CALCULATIONS

Summary of formulae

$$\text{Rope speed in m/min} = \frac{\text{Speed in km/h} \times 10^3}{60}$$

$$\text{Mass rate in tons per minute} = \frac{\text{Total mass per hour}}{60}$$

$$\text{Truck rate in trucks per minute} = \frac{\text{Mass rate per minute}}{\text{Load per truck}}$$

$$\text{Truck rate} = \frac{\text{Rope speed}}{\text{Length}}$$

$$\text{Trucks each side} = n = \frac{\text{Length}}{\text{Spacing}}$$

$$\text{Distance mass} \times g \times \sin \theta \quad (\theta \text{ is the angle of incline})$$

$$\text{Distance mass} \times g$$

$$\text{Resistance for full trucks}$$

$$\text{Resistance for empty trucks}$$

$$\text{Resistance of truck} \times \text{resistance per ton}$$

$$\text{Resistance of truck}$$

$$\text{Resistance of truck}$$

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Progressive opportunities to revise calculations.

9781485838425 MECHANOTECHNICS N5 STUDENT TEXTBOOK

9781485838432 MECHANOTECHNICS N5 LECTURER GUIDE

MECHANOTECHNICS N6

Shuters Mechanotechnics N6

builds on the introduction given in **Shuters Mechanotechnics N4 and N5**. Students continue to practise workshop procedures and processes, and reinforce the basic principles of mechanical engineering.

Worked examples throughout the book shows students how to apply the theoretical knowledge to practical calculations. Progressive exercises enable students to practise concepts.

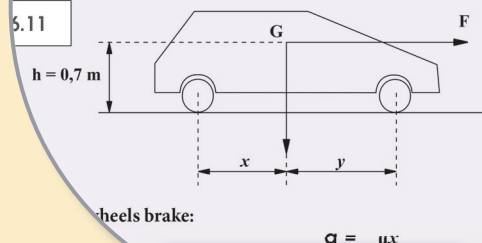
The Lecturer's Guide contains guidance for the lecturer, sample lesson plans and answers to the activities in the Student Textbook.



EXAMPLE 6.14

A car has a base of 2,9 m and its centre of gravity is 700 mm above ground level. The centre of gravity is 1,2 m from the front axle and the car is at a constant speed of 90 km/h on a level road and the coefficient of friction is 0,4.

- Find the minimum distance in which the vehicle can be stopped when:
 - Only the front wheels brake.
 - Only the back wheels brake.
 - Both the front and back wheels brake.
- Find the ratio $N_f:N_r$ when four wheels brake.



Worked Examples support self-study.

EXERCISE ONE

- A cone clutch has 3 driving discs and 2 driven discs, i.e. 4 pairs of contact surfaces. The discs have a diameter of 120 mm and 120 mm internal diameter. Assuming uniform pressure, calculate the total axial spring load required to transmit 25 kW at 1 575 r/min if the coefficient of friction between the discs is 0,24.
- If there are 6 springs, each of stiffness 13 kN/m, and each of the contact surfaces is 10 mm thick, calculate the maximum power that can be transmitted under the following conditions:
 - Uniform pressure.
 - Uniform wear.
- A cone clutch is designed to transmit 27 kW of power at 1 240 r/min. The clutch has an inner radius of 122 mm and an outer radius of 152,5 mm respectively, with a coefficient of friction of 0,25 and the allowable uniform normal pressure is 0,5 MPa. Calculate the necessary axial load.
- A cone clutch is designed to transmit 11,2 kW at 1 500 r/min. The inner and outer radii are 122 mm and 152,5 mm respectively. The maximum axial spring force is restricted to 1 000 N. Calculate the necessary number of pairs of surfaces if $\mu = 0,35$ (assume uniform pressure). What will be the necessary axial force?
- A cone clutch has 6 pairs of contact surfaces, each having a diameter of 120 mm. The coefficient of friction between the discs is 0,24. Calculate the total axial spring load required to transmit 25 kW at 1 575 r/min if the coefficient of friction between the discs is 0,24.

Exercises test the application of knowledge at different levels.

TRACTION AND VEHICLE DYNAMICS

6.1 BASIC PRINCIPLES AND FUNCTIONS

Vehicle dynamics

Vehicle dynamics is basically the study of a vehicle in motion.

To understand what a vehicle does and what it does consist of, we need to know the components of a vehicle. The components are as follows:

- Engine, gear box, drive axles.
- Suspension, steering, brakes, tires and wheels.
- Chassis, body, doors, roof, trims etc.

One of the first things that comes to mind is that a vehicle is used to carry people and goods. It must be able to carry people safely, comfortably and efficiently. It is also to listen to the driver, which is the function of the vehicle.

In the study of vehicle dynamics, the study of vehicle dynamics is the study of the behavior of the vehicle under certain driving conditions (c.c.) and to study and verify if the vehicle is safe and efficient.

Baseline learning reviews develop positive progression.

9781776288199

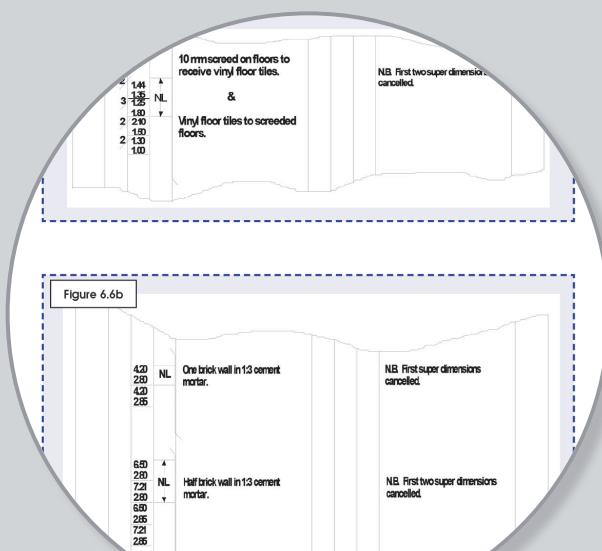
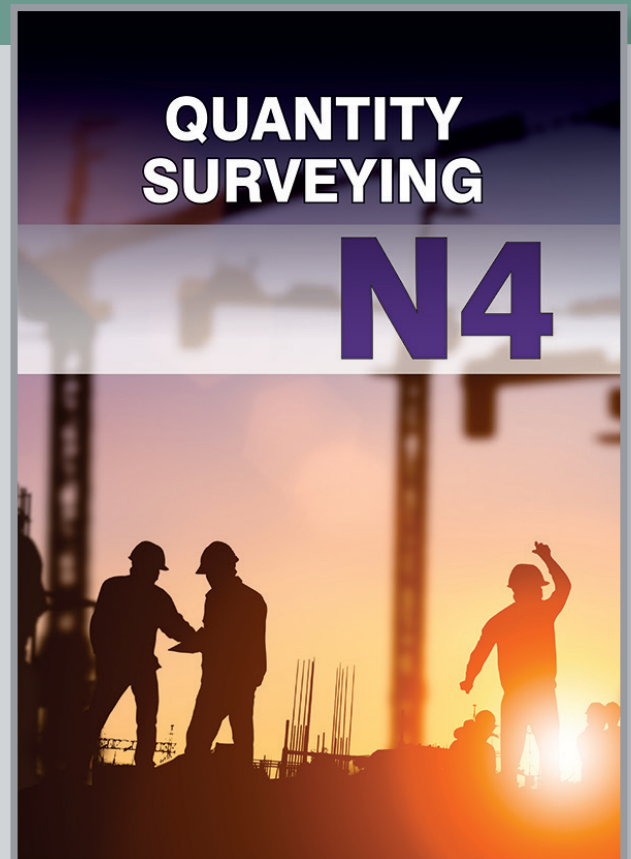
MECHANOTECHNICS N6 STUDENT TEXTBOOK

9781776288205

MECHANOTECHNICS N6 LECTURER GUIDE

QUANTITY SURVEYING N4

Shuters Quantity Surveying N4 is written according to the latest syllabus. Using this textbook, students will acquire a thorough grounding in the theory and practice of Quantity Surveying at an N4 level. Through the use of examples and activities, students will be able to master the skills and knowledge needed at this level. Resources for the lecturer are available online to assist with the marking of activities and lecture preparation.

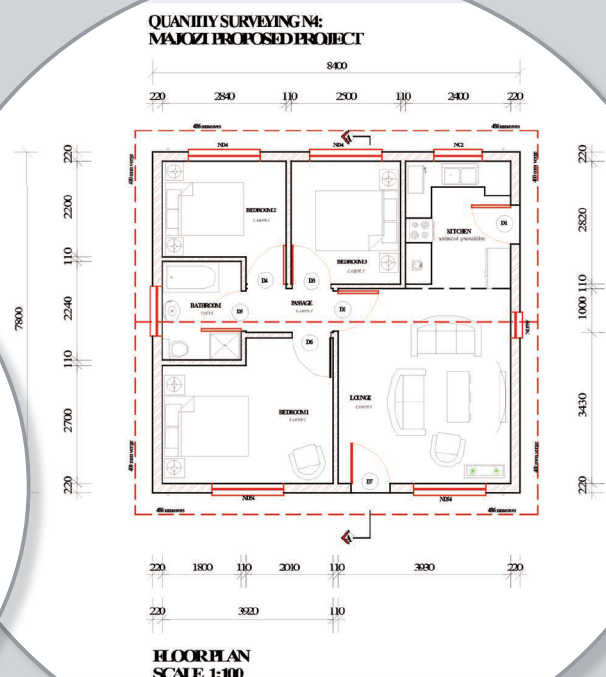


Real life practical examples increase student comprehension.

5.2 TAKING OFF

838 x 1981 x 44 mm thick flush door		215 mm thick solid concrete block wall.	79 sq m
15 Nr.			
3/3	6/9	2 1/2 5 16	2 40 49 54
	15	3/2 4 00	1 23 29 52
			79 06

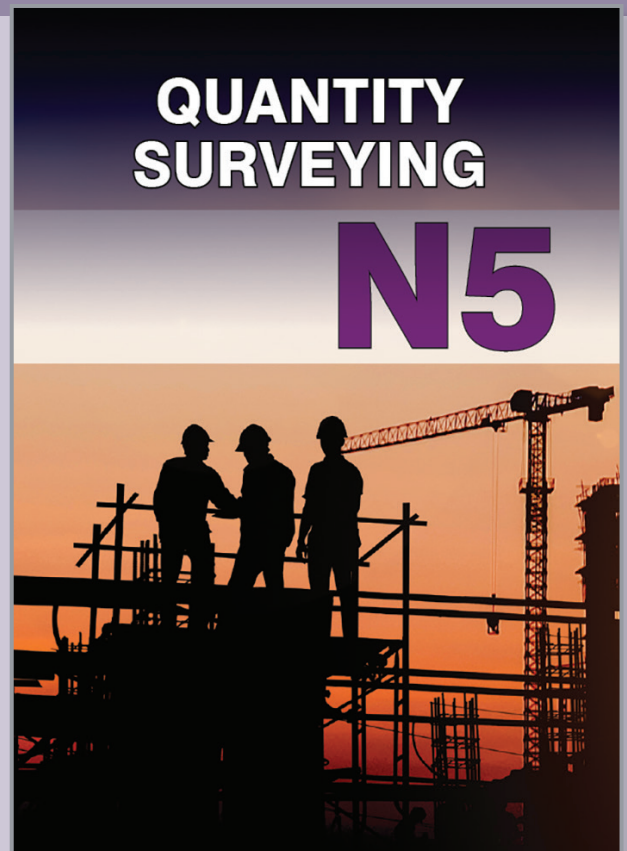
Example of a Taking off.



Wide range of measurement exercises broaden learning experience.

QUANTITY SURVEYING N5

Shuters Quantity Surveying N5 is written according to the latest syllabus. Using this textbook, students will acquire a thorough grounding in the theory and practice of Quantity Surveying at an N5 level. Through the use of examples and activities, students will be able to master the skills and knowledge needed at this level. Resources for the lecturer are available online to assist with the marking of activities and lecture preparation.



QUANTITIES AS A CONTRACT

As learned in the previous modules, a Bill of Materials is a list of materials taken from drawings prepared by architects and structural engineers. It is a contract document, which makes it the most important document in a contract.

As you have seen, each trade has its own bill and the trade bills are arranged in a given by *The Standard System*. The bills together comprise the Bill of Materials.

The owner/employer needs a definite agreed cost before commencing the work.

To determine the cost of a building the owner obtains the services of a quantity surveyor who prepares a detailed and itemised list of the components required for the building. This list is known as the Bill of Materials. The quantity surveyor is usually the quantity surveyor employed by the owner. The building contractor has to prepare his own Bill of Materials from the Bill of Materials. In this case, the Bill is prepared by the building contractor's surveyor.

When the Bill is complete, the building contractors are invited to price the Bill and arrive at a total sum.

Each contractor has her own prices for the items in the Bill. The prices are not identical. When a tender is accepted the Bill is part of the contract.

5 BUILDING CONTRACTS

EXAMPLE 02 SOLUTION

COLLECTIONS

Centre line of one brick wall & footing

$2/1 \ 4650 = 29 \ 300$
 $2/7 \ 650 = 15 \ 300$
44 600 Ext. perimeter
- 2/2/220 - 880
43 720 M.G.

Centre line of half brick wall in lining.

44 600 (Perimeter)
- 2/2/110 - 440
44 160 Mean Girth

Centre line of one-and-half brick wall.

44 600 (Perimeter)
- 2/2/330 - 1 320
43 280 Mean Girth

Centre line of two brick wall

44 600 (Perimeter)

Calculations to determine cost of footing, one brick wall & half brick wall in lining.

Real-life situations are linked to the theory being taught.

1.6 EXERCISES

REQUIRED

What is a building contract?

Describe the difference between a tender and a contract.

3. Give a brief summary of the various types of contracts.
4. Discuss briefly three methods of calling for tenders.
5. What roles are played by the architect and the quantity surveyor in calling for tenders? Draw on your background knowledge to answer.
6. A large building contracting firm wishes to tender for a large building. What would it set about doing so? Explain the processes and procedures from the beginning up to the time when the firm wants to start work.

What are five types of contract documents.

Key skills with Solutions, are presented in comprehensive Examples.

Exercises test the application of knowledge at different levels.

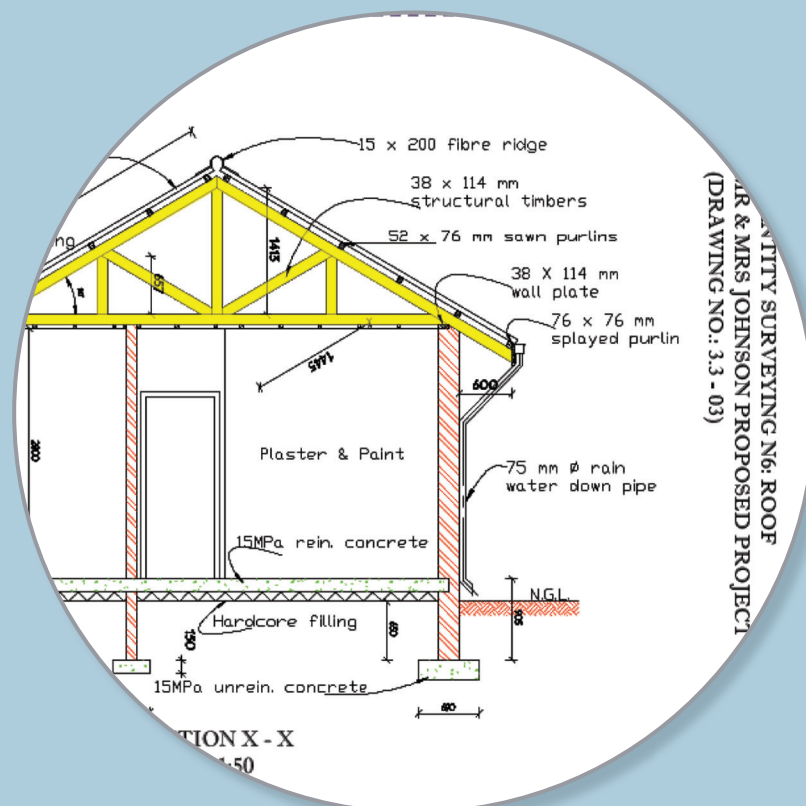
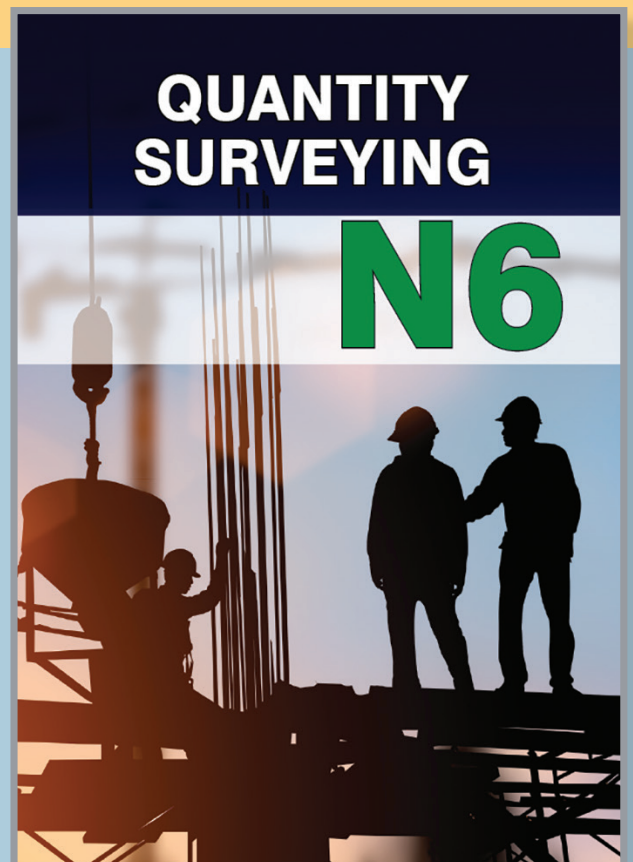
9781485838487

QUANTITY SURVEYING N5 STUDENT TEXTBOOK

QUANTITY SURVEYING N6

Shuters Quantity Surveying N6 is written according to the latest syllabus. Using this textbook, students will acquire a thorough grounding in the theory and practice of Quantity Surveying at an N6 level. The following areas are covered: Construction process (including communication processes); the Theory of quantity surveying; Measurement as it relates to plumbing, drainage, basements, etc.; and Quantities and Costing.

Through the use of examples and activities, students will be able to master the skills and knowledge needed at this level. Resources for the lecturer are available online to assist with the marking of activities and lecture preparation.



WORKED EXAMPLES

The worked examples that follow are for foundation column and bases, super-structure reinforcement.

Worked Example 3.4 – 01

The take-off list for Worked Example 3.4 - 01 could read as follows:

- Site clearance
- Excavation
- Risk of collapse
- Concrete in bases
- Concrete in beams and slabs
- Concrete in columns
- Formwork in bases
- Formwork in columns
- Formwork to slab and beams
- Provisional sums
- Back filling

LOCATION:

Wide range of measurement exercises broaden learning experience.

Worked examples show how theory is applied.

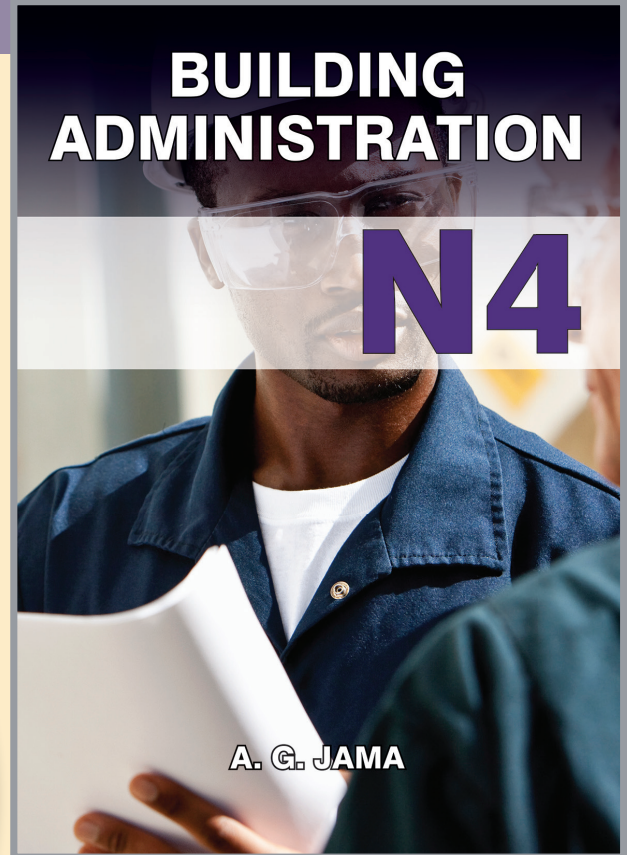
BUILDING ADMINISTRATION

N4

Shuters Building Administration N4 aims to introduce students to the building site. They will learn how to manage and administer construction sites in a real-world situation, and will also understand and be able to adhere to the relevant safety standards and procedures.



MODULE 6: CONSTRUCTION



Clear diagrams to simplify learning.

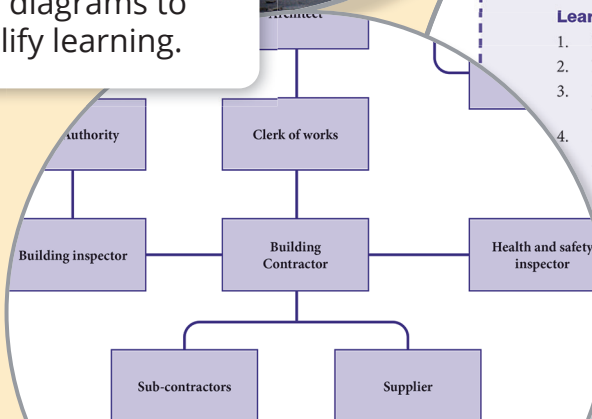


Figure 1. Shows the structure of professional consultant in a building project

1.2 CLIENT/OWNER/EMPLOYER

A person or group of people who want to erect or build a structure and an engineer to make it reality. They work closely together. However, once the contract has been signed...

ACTIVITY 1 AND QUESTIONS

Learning activity 1

1. List all the professional consultants that you have learned about in this module.
2. Name five duties for each consultant given in Question 1.
3. Explain the meaning of 'professional consultant' in your own words, or according to your understanding.
4. Prepare a line diagram to show the relationship between the members of the professional team. Discuss the functions of the following professionals in the building industry:

- The architect
- The building inspector
- The quantity surveyor

Answer the following questions about the clerk of works:

- Who does the clerk of works represent?
- Who pays/employs the clerk of works?
- Name two duties a clerk of works is responsible for carrying out.
- May the clerk of works issue any instructions?

Explain the function of the architect.

Why is it necessary to involve professional consultants in a building project?

Why is it necessary for a structural engineer to check the building plans?

Why is it important for the electrical engineer to work closely with the architect?

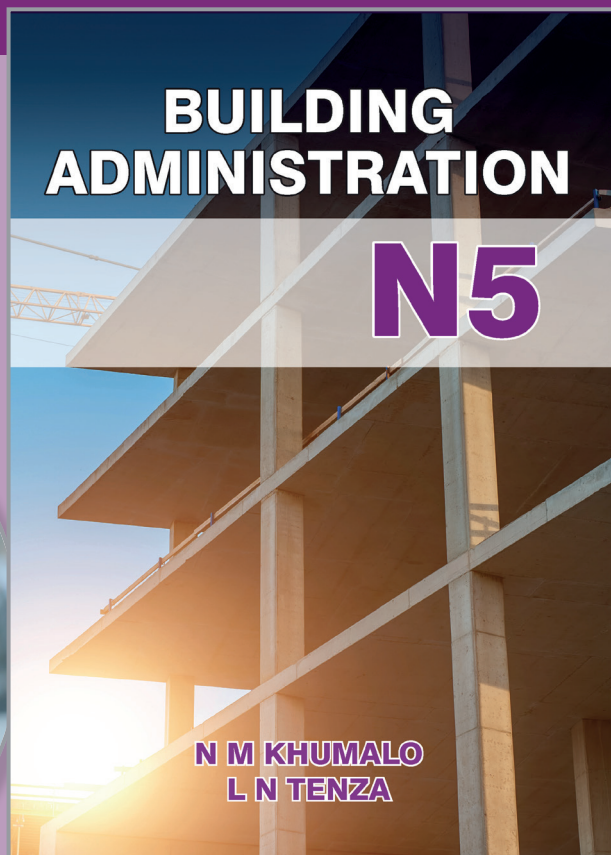
11. What is the function of a building inspector?
12. Differentiate between the structural engineer and the geotechnical engineer.
13. What are the duties of a building inspector?

Activities to test theory and practice

Discuss the pre-contract duties, the contract stage and post-contract duties for the following professionals: architect, building inspector, quantity surveyor.

BUILDING ADMINISTRATION N5

Shuters Building Administration N5 helps the student to build on the knowledge acquired at N4 level. They will gain a more comprehensive understanding of what is involved in the administration of building projects, with specific reference to South African Industry standards, and health and safety requirements.



Presenting tips and techniques

The golden rule before presenting and pitching to stakeholders is that the entrepreneur knows the business as a slideshow, to help in answering questions that allow the audience to understand the business.

Entrepreneurs should have a clear outline of the business and use effective visual aids to support the oral presentation to interested audiences.

For delivering a successful presentation, the entrepreneur should:

- Clear diagrams and photographs enhance the learning material, and

- test modules at the end of each Module help learners to consolidate their understanding of the subject content.

4.3 Maintenance of maintenance of equipment

Equipment is a tool that helps to secure reliable and satisfactory production quality, and is essential for the environment.

Maintenance is aimed at improving reliability, performance and safety, while extending the life of the equipment. A well maintained plant allows for maximum output and productivity, resulting in a lower cost.

Maintenance must be planned and executed in the least disruptive manner, and safety is a matter of critical importance. The operator checks oil, grease, water, loose nuts, etc. The operator also checks brakes, lights, fuel, etc.

Preventive maintenance

Preventive maintenance is a type of maintenance that is performed on a regular basis to prevent equipment from failing. It involves checking the equipment for signs of wear and tear, and replacing worn parts before they fail.

Corrective maintenance is on site when required

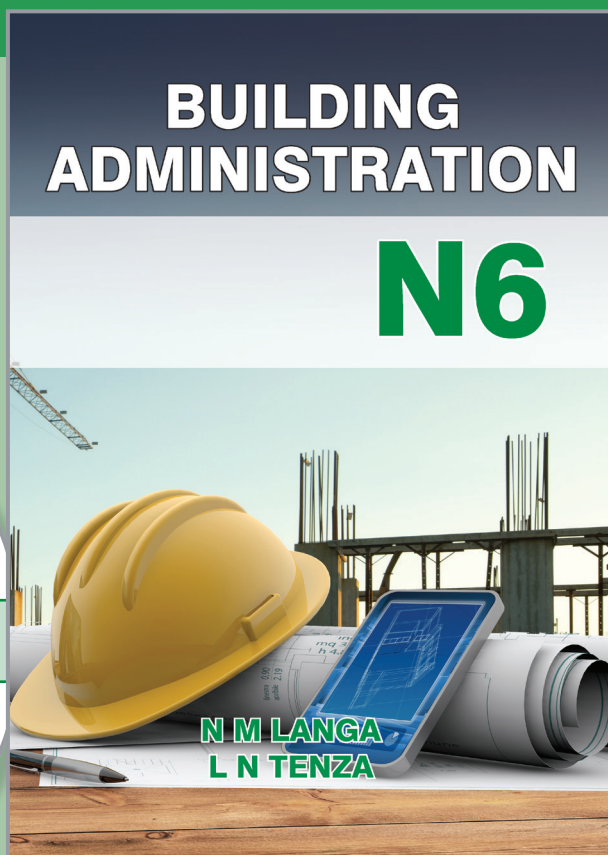
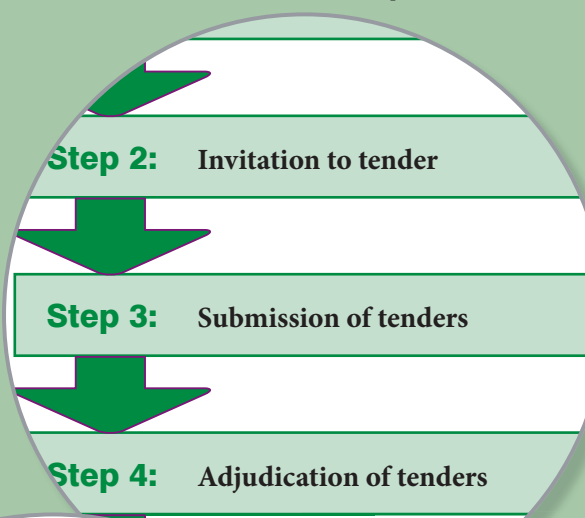
Corrective maintenance is a type of maintenance that is performed when equipment fails. It involves identifying the problem, diagnosing the cause, and repairing the equipment. A maintenance chart is used to ensure the plant is always on site when required.

One copy is sent to the plant supplier (department of maintenance) through the supervisor is agreed upon (e.g. by phone).

and on-site plant maintenance is performed

BUILDING ADMINISTRATION N6

Shuters Building Administration N6 helps the students to develop their ability to manage construction sites and to adhere safety standards and procedures. The more legal aspects of tendering, contracts and ethics are explored, as well as safety regulations, work study and staff motivation and development.



Excavation

Rate for excavation = R95/m³

∴ Cost = 6,72m³ × R95 = R638.40

Concrete foundation

The footing = 0,7m × 0,25m

Volume of concrete foundation = l × w × d

= 22,32m × 0,25m × 0,7m

= 3,906m³ ⇒

Rate for concrete foundation = R1800/m³

∴ Cost = 3,91m³ × R1800 = R7038

Slab

The theory covered in the book is supported by clear explanations, examples and activities to ensure that learners master the subject content.

motivation, namely:

Intrinsic motivation: sometimes referred to as 'internal motivation', this is driven by personal factors.

Extrinsic motivation: sometimes referred to as 'external motivation', this is driven by factors outside one's self.

Table of motivators

Intrinsic Motivation	Extrinsic Motivation
Feeling of accomplishment	Money
Enjoyment	Promotion
Knowing you did a good job	Awards
Personal ethics	Recognition
Self-respect	Respect
Meeting a goal you set for yourself	Meeting a goal set by others

Ways to influence motivation on site:

Develop loyalty by always being fair.

Encourage teamwork.

Provide good working conditions.

Communication is a two-way process.

Motivation by providing job security.

STRENGTH OF MATERIALS AND STRUCTURES N5

Shuters Strength of Materials and Structures

N5 builds on the knowledge that students have attained from their N4 studies. It provides them with both theoretical knowledge as well as practical examples and the chance to apply their knowledge.

The Student Textbook contains extensive diagrams, explanations and worked examples to help the students understand the subject content. Exercises at the end of each Module help them to apply the theory learned.

$$F = \frac{\sigma A}{1 + \alpha (Le/k)^2}$$

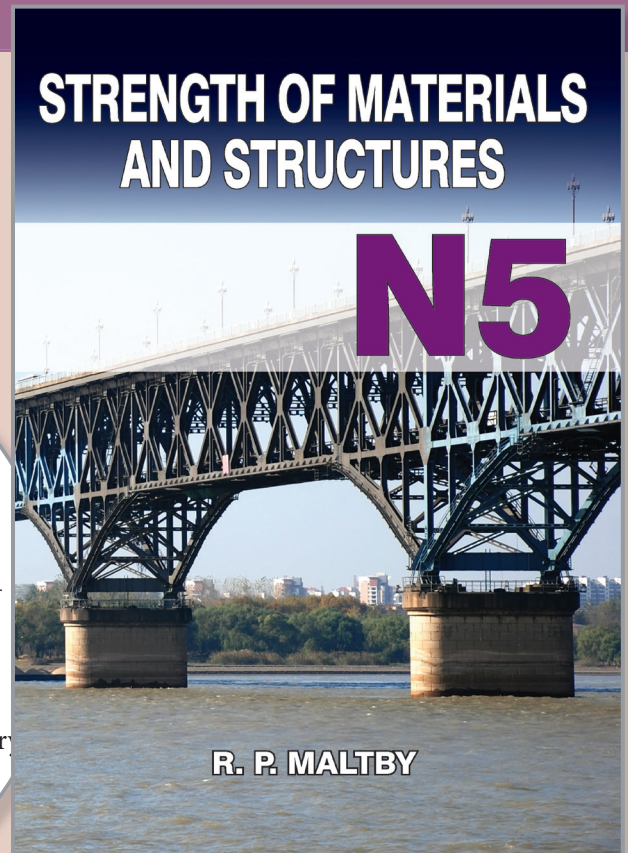
$$Le = 2 L$$

Slenderness ratio (SR) = Effective length of strut / Least radius of gyration

$$SR = \frac{Le}{k}$$

For slenderness ratio less than 120 we call this a column and Euler's theory

For slenderness ratio greater than 120 we call this a strut and Rankine's theory



– EXAM TYPE QUESTION

A strut with both ends fixed has a length of 3 m. The safe working load on the strut is 90 kN. The Rankine constant is 1/7 500. Use a factor of safety of 2.

The Rankine constant is 1/7 500. Use a factor of safety of 2.

- The dimensions of the strut.
- The safe load for Euler's equation.
- The slenderness ratio when the critical load is 90 kN.

A straight bar of steel 1,5 m long is subjected to a compressive load of 100 kN. The bar is in compression till it is subjected to a load of 100 kN.

The Lecturer Guide, in addition to containing the answers to the exercises, also contains lesson plans, a teaching plan, e-resources and sample examination papers to help the lecturer.

STRAIN ENERGY

STRAIN ENERGY

Introduction

When a deformed structure, such as a spring, stretches, then it stores a type of energy known as strain energy. In many cases, this energy can be converted into other types of energy, such as kinetic energy.

Definition of strain energy

Strain energy is a type of potential energy that is stored in a structural member as a result of elastic deformation. The external work done on such a member when it is deformed from its unstressed state is transformed into, and considered equal to the strain energy stored in it.

Gradually applied loads

When a load is gradually applied to a bar and the bar undergoes an increase in length, the load moves as the bar deforms and therefore work is done by the load on the bar. Since the effect of this work done is stored in the bar, the measure of this work done is called strain energy.

9781776314065

STRENGTH OF MATERIALS AND STRUCTURES N5 STUDENT TEXTBOOK

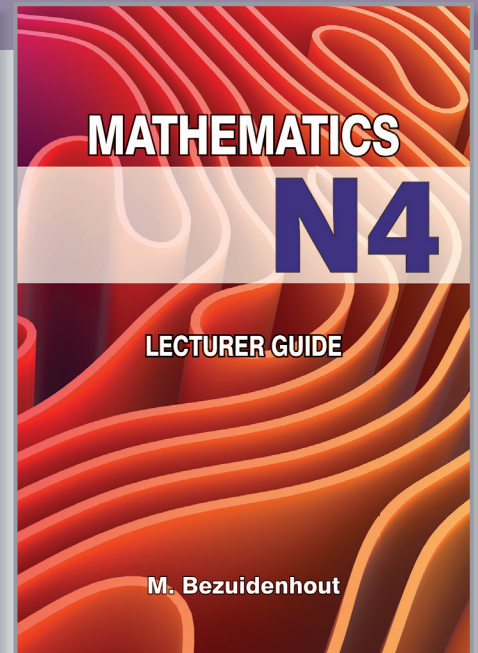
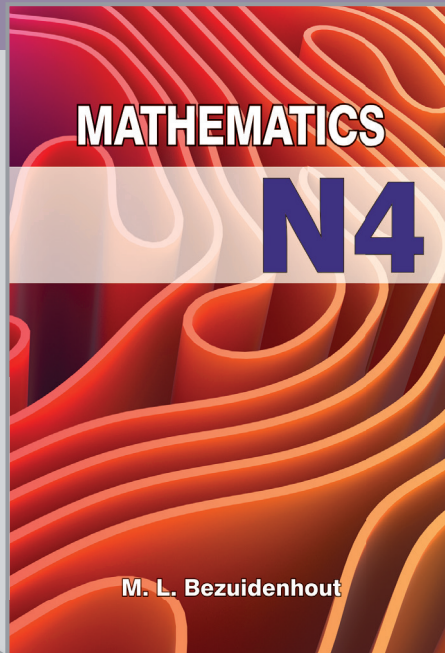
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STRENGTH OF MATERIALS AND STRUCTURES N5 LECTURER GUIDE

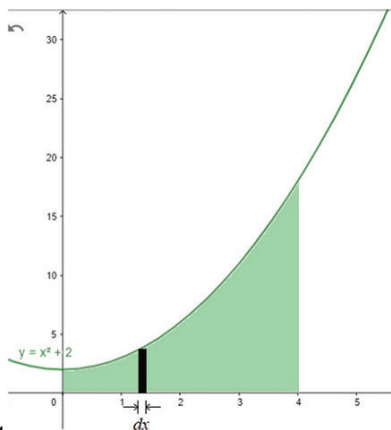
MATHEMATICS N4

Shuters Mathematics N4

will provide students with the necessary skills needed to identify and calculate mathematical problems they are likely to encounter in industry. They will gain the necessary knowledge to integrate mathematics into their various trade subjects, and provides a foundation for further studies at N5 and N6 level.



Exercise 6.6



1.1

Area = $29\frac{1}{3}$ square units



Solutions to the Self Tests are provided in the *Lecturer Guide*.

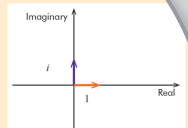
Exercise 1.2

- Solve the following systems of equations using Cramer's Rule:
 - $x + y = 7$; $x + 2y = 11$
 - $\frac{1}{2}x + \frac{1}{4}y = 1$; $x + y = 3$
 - $x + \frac{1}{4}y = 3$; $3x + 2y = 3$
 - $\frac{1}{4}a + \frac{1}{4}b = 2$; $\frac{3}{4}a + 2b = 1$
 - $3b = 2$; $0,5a + 0,6b = 1$

Worked Examples with labelled diagrams build student confidence and support self-study.

Imagining imaginary numbers

Think of the number i as a number that exists on its own number line. Its number line is perpendicular to the real number line with the positive axis going upwards.



2.1 Identify real and imaginary parts of a complex number in rectangular form

A complex number can be expressed in the form $a + bi$, where a and b are real numbers and $i^2 = -1$. The real part of this complex number is a and the imaginary part is b . Two complex numbers are equal if, and only if, both their real parts and their imaginary parts are equal. Note that both a and b are real numbers.

Identify the real and imaginary parts of each of the following complex numbers.

Complex number	Real part	Imaginary part
$3 + 4i$	3	4
$3 - 3i$	3	-3
$\frac{1}{2}i$	0	$\frac{1}{2}$

Progressive opportunities to revise calculations.

9781776315512

MATHEMATICS N4 STUDENT TEXTBOOK

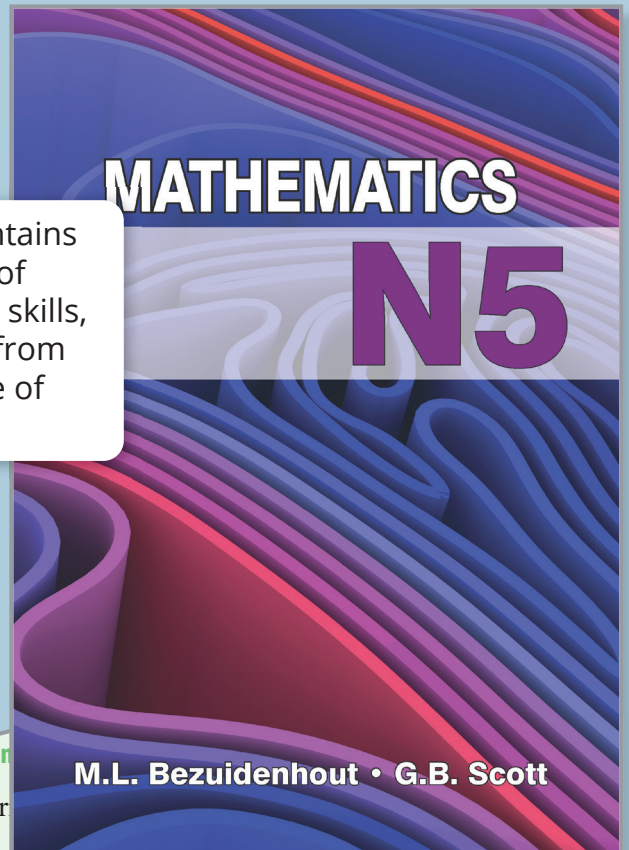
9781776315536

MATHEMATICS N4 LECTURER GUIDE

MATHEMATICS N5

Shuters Mathematics N5 builds on the foundation created by Mathematics N4, taking the student into greater depth as they learn to integrate the mathematical skills and calculations learned into their specific trade subjects.

The Student Textbook contains worked examples, plenty of exercises to hone student skills, and moves progressively from basic calculations to those of greater difficulty.



Differentiating $f(x) = \cos x$ from first principles

First step for differentiating from 1st principles

- work out $f(x+h)$
- use Compound Angle trig identities for $\cos(x+h)$ and differentiate each term in the expansion

2nd, 3rd and 4th steps for differentiating from 1st principles

$$f(x+h) - f(x)$$

$$= \frac{4}{5}(x+h)^{\frac{1}{2}}$$

$$= \frac{4}{5} \left[x^{\frac{1}{2}} + \frac{h}{2x^{\frac{1}{2}}} - \frac{h^2}{8x^{\frac{3}{2}}} + \frac{h^3}{16x^{\frac{5}{2}}} - \dots \right]$$

$$\frac{f(x+h) - f(x)}{h} = \frac{\frac{4}{5} \left[x^{\frac{1}{2}} + \frac{h}{2x^{\frac{1}{2}}} - \frac{h^2}{8x^{\frac{3}{2}}} + \frac{h^3}{16x^{\frac{5}{2}}} - \dots \right] - \frac{4}{5}x^{\frac{1}{2}}}{h}$$

$$= \frac{\frac{4}{5} \left[\frac{1}{2x^{\frac{1}{2}}} - \frac{h}{8x^{\frac{3}{2}}} + \frac{h^2}{16x^{\frac{5}{2}}} - \dots \right]}{h}$$

$$= \frac{4}{5} \left[\frac{1}{2x^{\frac{1}{2}}} - \frac{h}{8x^{\frac{3}{2}}} + \frac{h^2}{16x^{\frac{5}{2}}} - \dots \right]$$

$$\frac{f(x+h) - f(x)}{h} = \lim_{h \rightarrow 0} \frac{4}{5} \left[\frac{1}{2x^{\frac{1}{2}}} - \frac{h}{8x^{\frac{3}{2}}} + \frac{h^2}{16x^{\frac{5}{2}}} - \dots \right]$$

Differentiation techniques: Logarithmic differentiation

When differentiating expressions that are complicated by exponents, with a variable

treat all y variables as functions of x , using the Chain Rule idea of innermost function as $\frac{dy}{dx}$.

- Use the product and quotient rules as required.
- Solve the equation for $\frac{dy}{dx}$.

The Lecturer Guide provides assistance to the lecturer, and solutions to all the calculations and self-test questions.

9781776315550

SHUTERS MATHEMATICS N5 STUDENT BOOK

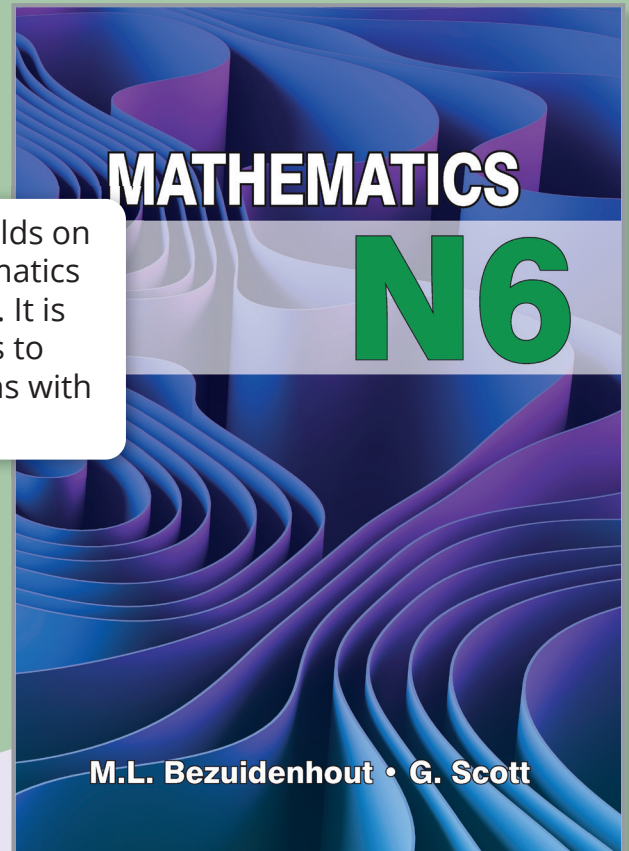
9781776315581

SHUTERS MATHEMATICS N5 LECTURER GUIDE (EBOOK ONLY)

MATHEMATICS N6

Shuters Mathematics N6 provides a foundation for many other areas of learning, particularly in the engineering fields. In this book, the focus is on understanding the strategies and processes for solving problems that engineers encounter, rather than on proofs.

The Student Textbook builds on the foundation of mathematics work done at lower levels. It is aimed at helping students to deal with the examinations with confidence.



M.L. Bezuidenhout • G. Scott

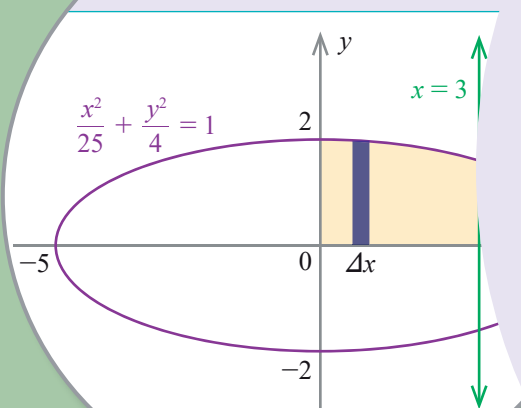
Trigonometric functions

Trigonometric functions raised to powers

You have already dealt with the integration of trigonometric functions. These identities enable you to integrate trigonometric functions raised to powers.

- \sin^2 in terms of \cos^2 , and vice versa;
- \tan^2 in terms of \sec^2 , and vice versa; and
- \cot^2 in terms of cosec^2 , and vice versa.

By manipulating the integrand in this way, the integration can easily be integrated.



Example 4.1

Find the general solution of $\tan x \frac{dy}{dx} + 2y = x \cdot \operatorname{cosec} x$.

Solution

- Divide all terms of the equation by the coefficient of $\frac{dy}{dx}$ to get it as close to the standard form as possible.

$$\frac{dy}{dx} + 2(\cot x)y = x \operatorname{cosec} x \cot x$$

- The coefficient of y corresponds to $P(x)$, which we use to construct the integrating factor $I(x) = e^{\int P(x) dx}$.

$$\begin{aligned} P(x) &= 2 \cot x \text{ and integrating factor } I(x) = e^{\int P(x) dx} \\ &= e^{\int 2 \cot x dx} \\ &= e^{2 \ln \sin x} \\ &= \sin^2 x \end{aligned}$$

- Multiply all terms of the standard form by the integrating factor $I(x)$ to get the derivative of $I(x)y$.

$$(\sin^2 x) \frac{dy}{dx} + 2(\sin^2 x)y = x \sin^2 x \operatorname{cosec} x \cot x$$

$$(\sin^2 x) \frac{dy}{dx} + 2 \sin x y = x \sin x$$

The Lecturer Guide provides assistance to the lecturer, and solutions to all the calculations and self-test questions.

Change the form of the left-hand side, expressing it as the derivative of $I(x)y$.

9781779921246

SHUTERS MATHEMATICS N6 STUDENT BOOK

9781779925343

SHUTERS MATHEMATICS N6 LECTURER GUIDE (EBOOK ONLY)

TRAVEL OFFICE PROCEDURES N5

Travel Office Procedures N5 build on the student's knowledge of Travel Office Procedures that was gained at N4 level. They will learn about the financial aspects of a tourism business, and how to perform basic financial transaction recording. This book will teach the student how to understand the various entrepreneurial opportunities in the tourism industry and the financing relevant to these businesses.

Activity 2.7.3

- Following totals appeared in the books of Ashley's Odyssey:
- Bank total in the Cash receipts Journal was R549 632,00
 - Bank total in the Cash Payments Journal was R291 476,00
 - The Bank balance brought down from July 2020 was R92 530,00

Required:

1. Open the Bank Account in the General Ledger of Ashley's Odyssey.
2. Balance the Bank Account.

General Ledger of Ashley's Odyssey Balance Sheet Section

Bank					
Date	Details	Folio	Amount	Date	

Example of Credit Sales Invoice

Any Fuze Tours		CREDIT INVOICE NUMBER	
P.O. Box 345 UMHLANGA 4001 Tel: 031-451 7623 • Fax: 086 2314567		2	
To: L Lima P.O. Box 951 DURBAN 4001		3	
Quantity	Description	Unit Price	Amount
3 air tickets – RETURN	CPT-PTY-CPT	CE531	1 020,00
4			5
			5 R3 030,00
Terms: Payment within 30 days			
Customer signature		LDube	
Travel agent's signature		CKhathi	
Date		7 January 2020	
		9	

The following information appears on the credit invoice:

1. Credit sales invoice number
2. Name and address of the travel agency
3. Name and address of the customer
4. Quantity and description of the sale
5. Unit price and total amount due from the customer
6. Terms of payment
7. Signature of the customer/client
8. Signature of the agent working for the travel agency
9. Date

All Activities from the Student Textbook are provided in the **Workbook**, ready for students to complete. (bookkeeping forms, petty cash and cheques, etc.)

Notated examples of a wide variety of travel industry documentation.

TRAVEL OFFICE PROCEDURES

N5

STUDENT TEXTBOOK

TRAVEL OFFICE PROCEDURES

N5

LECTURER GUIDE

TRAVEL OFFICE PROCEDURES

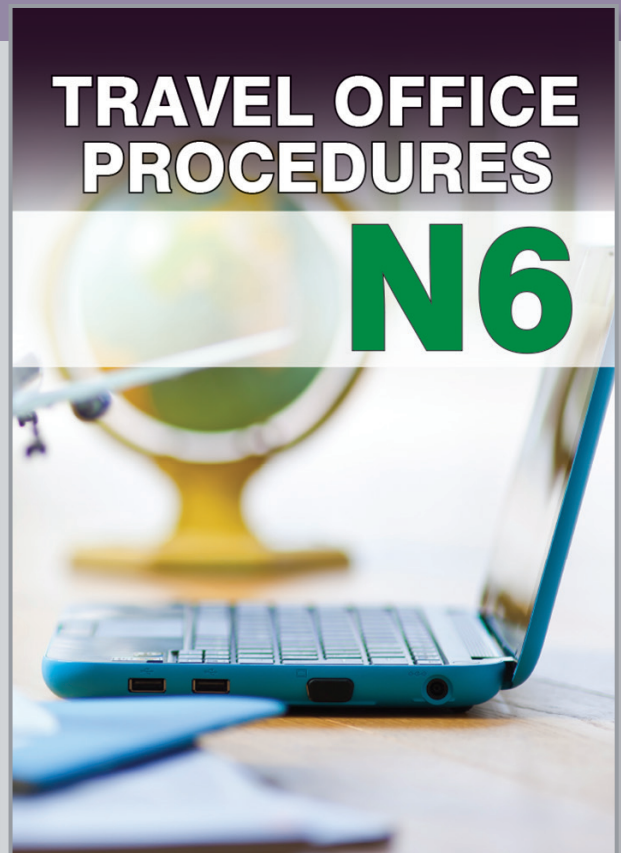
N5

STUDENT WORKBOOK

9781485838357	TRAVEL OFFICE PROCEDURES N5 STUDENT TEXTBOOK
9781776288229	TRAVEL OFFICE PROCEDURES N5 STUDENT WORKBOOK
9781776288212	TRAVEL OFFICE PROCEDURES N5 LECTURER GUIDE

TRAVEL OFFICE PROCEDURES N6

Travel Office Procedures N6 has been designed to build on the student's knowledge of Travel Office Procedures that was gained at N5 level. They will learn about the legal aspects of travel as well as how marketing and sales is used in this dynamic industry. Students will gain a knowledge of human resources issues in the travel industry, and explore potential career options available to them.



1.1.4 Breach of Contract

One party's failure to fulfill any of its contractual obligations is known as a breach of contract. Types of breach of contract include the various ways an agreement between two parties can be broken. A breach can only occur if a valid contract exists.



BREACH OF A CONTRACT
One or more parties do not honour their obligations.



FLASHBACK: Elements of a Valid Contract

Both written and oral contracts are valid if they include all the following elements:

- An offer of value in exchange for goods or services has been made.
- The offer was accepted by the other party.
- Each party provides consideration or an item of value. If one party provides consideration, it constitutes a gift, which is not enforceable.

LTSM support tools include on-page Definitions and Bright Idea inserts which expand specific aspects.

ACTIVITY 2.2.4

Following scenario then answer the questions that follow.

The finance manager, you are asked to calculate the individual incentive travel competition. The sales for the previous year was R100 000. A 10% sales increase to determine an incentives budget, and a profit margin of 20% increase. Also, they allocate 40% of their profit to incentives programme.

1. Calculate the increase in sales.
2. Calculate the profit earned.
3. Calculate the budget available for incentive travel.
4. Calculate the amount, per person, available for incentive travel.

Show all your calculations.

Thereafter, you contact your travel agent partner, with the amount per person individual budget for each winner of the incentive travel competition as follows:

- Promotion: 15%
- Transportation: 25%
- Accommodation: 35%
- Meals: 15%
- Other: 10%

Show all your calculations.



Media training: how to deal with media in a crisis: <https://www.youtube.com/watch?v=EVujjbGvnal>

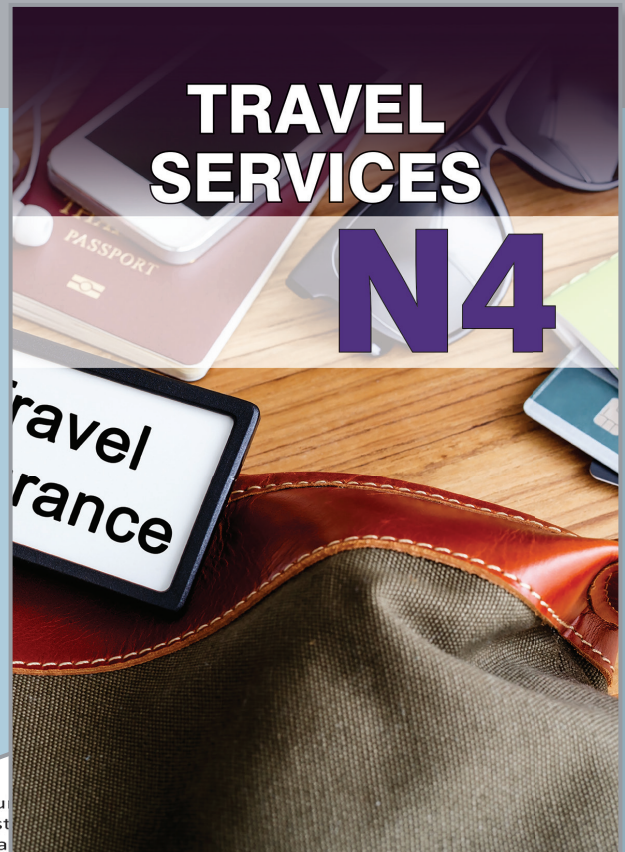
Global safety council: dealing with the media in emergency situations. <https://www.youtube.com/watch?v=POWe-omjg>

E-resources such as YouTube videos and websites are provided.

Exercises test the application of knowledge at different levels.

TRAVEL SERVICES N4

Shuters Travel Services N4 will prepare students for a career in the tourism industry, with specific reference to travel. The book will give students a thorough knowledge of the terminology and components of the travel industry in South Africa. They will gain the necessary knowledge and skills to give effective passenger service, to advise clients on travel arrangements, calculate fares and complete travel documents correctly.



TRAVEL SERVICES N4

...their luggage
...service can also collect
...airport terminal upon arrival
...to their car.

Figure 2.3: Valet parking

There is a difference between a service and a facility. A service is the action of helping or doing work for someone. A facility is a place or a piece of equipment that is there to do a particular job. Parking is a facility but valet parking is a service.

Airport desks

Airport desks are the counters at which a passenger can get information. The pictogram for an information desk is often the letter 'I'. There are information desks for the airport itself and the various airlines that fly from that airport. Staff at the tourist information desks can assist passengers with questions about the airport, as well as provide general information about the city, book accommodation and recommend tours and attractions. Most airlines will have a service desk that provides information about the airline as well as help with the purchase of tickets.



Figure 2.4: Information desk



Figure 2.5: Airline service desks

Real-life situations are linked to the theory being taught.

...is role. Use the GSA and this textbook to answer the questions

You can also consult the website below.

<https://www.safarinow.com/destinations/tsitsikamma/popularattractions/bloukrans-bridge-bungy.aspx>

- In which province will you find the Bloukrans Bridge? (2)
- b) Name one accommodation establishment close to the Bloukrans Bridge where the couple can stay. Remember, it is their wedding anniversary. Give the name, contact number and email address of the accommodation. (4 × 1) (4)
- c) Name one company that will be able to take the couple bungee jumping. Is the company a producer or a support service? Explain why you say that. (2)
- d) In your role play you have to execute 5 function of a travel consultant (list the functions that you have executed). (5 × 1) (5)

On-route to work on Monday morning, Siyabonga was walking past Terrific Travel Agency (TTA). The travel consultants were handing out pamphlets to everyone, Siyabonga happen to take one. The tour package was called Moroccan Madness and included all the exciting activities and cities a tourist can visit in Morocco should they embark on this tour. The most interesting and exciting part of the package is that it included discount rates on all entrance fees to all the tourist attractions. Name the roles of Terrific Travel Agency and Moroccan Madness respectively in the travel and tourism industry? (2 × 2) (4)

Which organisation would you belong to if you:
- owned a B&B in Makanda? (1)
- started a car rental company? (1)
- managed an independent travel agency with an office on the main street in a small town? (1)
- Had a catering company that provides food for delegates at big conferences?

Which organisation would you use if you:
- wanted to find out more about what to do in South Africa on holiday?

- organising a company to invest in a business to find out a

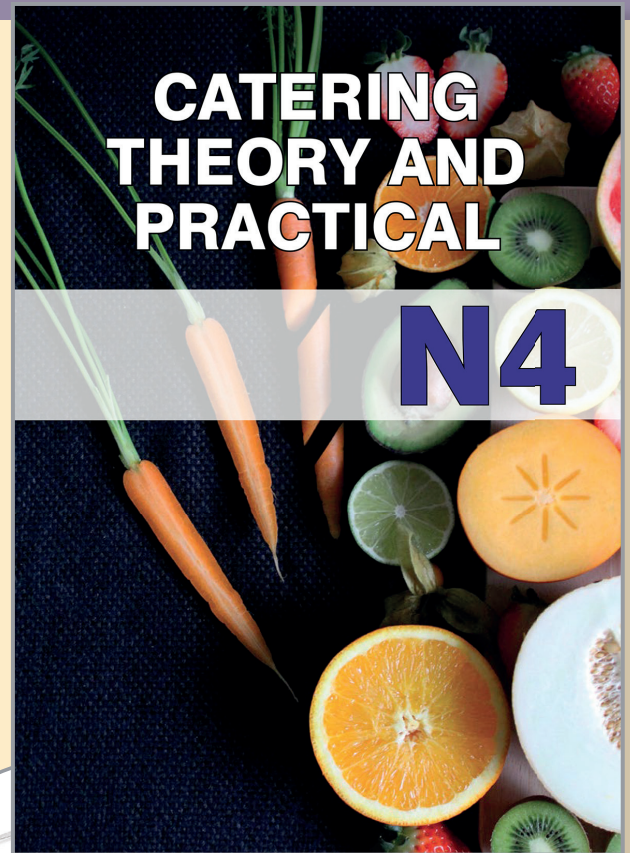
Outcomes are clearly described

Exercises test the application of knowledge at different levels.

CATERING THEORY AND PRACTICAL N4

Shuters Catering Theory and Practical N4

will empower students with the ability to discuss theoretical concepts in catering, and also to apply the theory and skills learned in the classroom to the preparation of suitable and applicable dishes. Students will master all the basic theory as given in the subject outcomes, and then apply the theory to practical recipes given in the book.



Recipes and instructions are included in the book.

Chicken and Vegetable Stir fry

Notes
 1. On your cuts perfecting your julienne.
 2. Could be added if you would prefer.
 3. Instructions the recipe sets out and cut accordingly.

	Definition
Commis	Commonly referred to as starter section. French term: garde-manger section.
Hot section	Section where stoves, friers and ovens are. Meat, vegetables, fish and sauce are made in these parts of the kitchen.
Cold section	Sections of kitchen that are temperature controlled or where there is no cooking equipment. The starter and pastry sections are part of the cold kitchen.
Pastry section	Pastry/dessert section. Part of cold kitchen.
Head chef	Main chef in charge of the kitchen. Mainly responsible for everything from staff to food cost. In very large establishments they might have both a head and executive chef.
Executive chef	Most establishments only have a head chef who performs all the duties an executive chef would as stated above.
Second in command	Usually, second in command. Communicates with chef de partie as to standards and makes sure standards are upheld.
Senior chef	Senior chef with experience. These chefs are usually in charge of their section.

Definitions for terms in each module are given and explained.

Scale

A cooking scale is used to weigh products of any kind in gram kilograms. A more modern approach in industry is to have ev weighed as it assists with standardisation.

Use:

- Used for weighing grams or kilograms.



Mixing bowls

Bowls of varying sizes. Usually, stainless steel or glass.

Use:

- Used for mixing ingredients.
- Can be used for storage if tightly wrapped.



Colander

Perforated bowl with handles.

Use:

- Used for straining rice or pasta.



Conical Strainer

Or china cap, body is made from metal also perforated.

Use:

- Can be used to strain stock of larger pieces of bone, vegetables (mirepoix) or impurities.

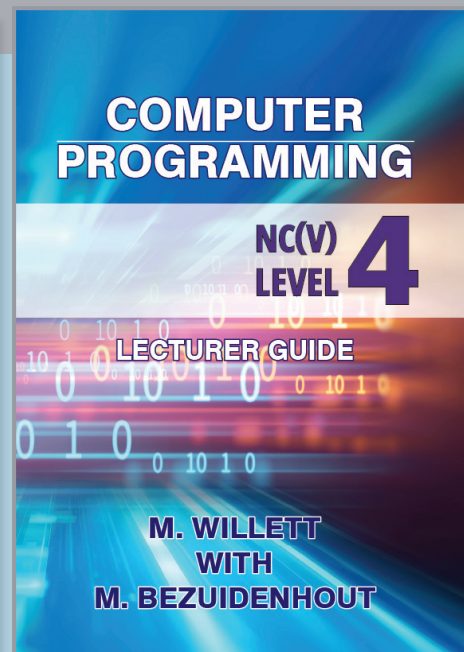
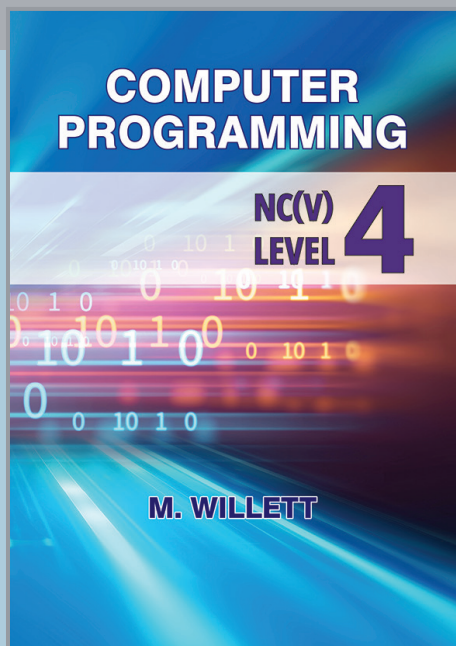


Extensive use of photographs enhances the learning experience.

COMPUTER PROGRAMMING NC(V)4

Shuters Computer Programming NC(V)4 has been written by subject experts, in line with the new syllabus for Computer Programming NC(V) Level 4. The book uses examples and activities to teach how to design user-friendly, computer-based solutions that meet the needs of end users. Students learn how the role of Computer Programming interacts with the broader IT environment. Accessible language and relevant examples make this book easy to use.

The *Lecturer Guide* provides extensive material to assist with lecture preparation and presentation, and includes useful electronic resources.



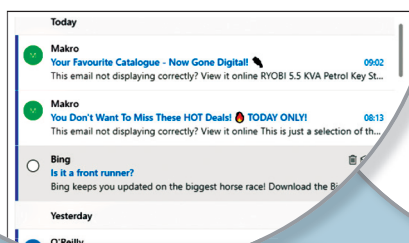
The *Lecturer Guide* has FREE online digital resources, including Extra Activities and Past Exam papers.



To help your understanding, read this blog which explains object-oriented programming concepts in simple English.
<https://blog.usejournal.com/object-oriented-programming-concepts-in-simple-english-3db22065d7d0>

To understand what an object in object-oriented programming is, let's look at a few objects:

- A computer game (for example a racing game) would include objects such as characters and cars.
- Whenever you create a Windows Form application in Visual Studio, you use objects and text boxes to build a graphical user interface (GUI).
- Likewise, an email application (like Hotmail or Gmail) would consist of many email objects.



E-resources such as YouTube videos and websites are provided.



How to ... Create a navbar and menu

To create the navbar and menu, do the following:

Step 1: Write the HTML needed

- To create a navbar, we'll create a list element. Each list item in the navbar will point to a different page on the website.

One of the list items must open a menu when clicked. To do this we create a dropdown menu. We assign the value of "dropdown" to this <div> and the <div> points to an element on the same page. The links could just as easily point to a different webpage on your website. Study the HTML used for the navbar below.

```
<header>
<h1>This is the header</h1>
<nav>
<ul>
<li>--This <ul> contains the contents of the navbar--</li>
<li><a href="#Home.html">Home</a></li>
<li><a href="#About.html">About us</a></li>
<li class="dropdown">
<!--This <li> will act as a dropdown menu-->
<span>Services </span>
<div class="menu_content">
<a href="#UIDesign">UI Design</a>
<a href="#Web">Web Development</a>
<a href="#Mobile">Mobile App Development</a>
</div>
</li>
</ul>
</nav>
</header>
```

Expanded examples reinforce the learning experience.

LESSON PLAN

Information Technology and Computing
Computer Programming, Level 4
DATES: (5 days)

Learning Objectives	Assessment	DATE
1. Explain the basic principles of an object. 2. Explain the basic principles of a class. 3. Explain the basic principles of inheritance. 4. Explain the basic principles of polymorphism. 5. Explain the basic principles of encapsulation. 6. Explain the basic principles of abstraction. 7. Explain the basic principles of object-oriented programming, using examples. 8. Explain the basic principles of object-oriented programming, using examples. 9. Explain the basic principles of object-oriented programming, using examples. 10. Explain the basic principles of object-oriented programming, using examples.		

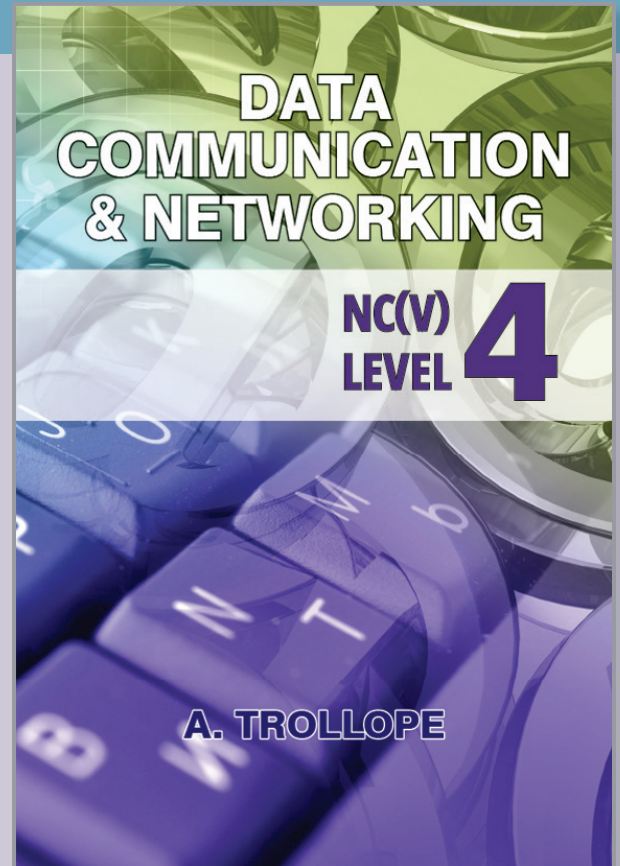
KEY QUESTIONS	STUDENT/LEARNING
1. Explain the basic principles of a class. 2. Explain the basic principles of an object. 3. Explain the basic principles of inheritance. 4. Explain the basic principles of polymorphism. 5. Explain the basic principles of encapsulation. 6. Explain the basic principles of abstraction. 7. Explain the basic principles of object-oriented programming, using examples. 8. Explain the basic principles of object-oriented programming, using examples. 9. Explain the basic principles of object-oriented programming, using examples. 10. Explain the basic principles of object-oriented programming, using examples.	1. Additional starter activity for LO 1. 2. Exercises 1.1 - 1.8

Lecturer Guide – Weekly Year Plan and Lesson Plans per week.

9781485832546	COMPUTER PROGRAMMING NC(V)4 STUDENT TEXTBOOK
9781485834212	COMPUTER PROGRAMMING NC(V)4 LECTURER GUIDE

DATA COMMUNICATION AND NETWORKING NC(V)4

The **Shuters Data Communication and Networking NC(V)4 Student Textbook** has been written according to the latest NC(V) Level 4 syllabus. This textbook provides students with the content and the context of computer networking (both simple and complex) and how to design and install local area computer networks. Through relevant examples, activities and case studies, students will build up their knowledge and skills to achieve the outcomes of the syllabus. *Lecturer* resources are available as a download from the Shuters website.



How to ... ensure that the installation is scheduled to minimise disruption to the users

One way to ensure that the installation is timed to minimise disruption to the users is to do the installation over a weekend. The benefit of doing this is that users are not affected and that can speed up the process.

The installation can be divided into phases and completed in certain sections to minimise disruption.

How to ... ensure that a risk analysis identifies the tasks which are vulnerable to standard risks

Every network installation faces risks that could present threats to its success. Risk is defined as the probability of an event taking place and the consequences of it happening.

Risk management for computer networks as the tree goes wrong. Once you know the risks, then evaluate those that are more easily manageable. Consider strategies to deal with those risks which are more difficult to deal with.

Where the entire network depends on a central hub and a failure of the central hub can bring the whole network down.

Understanding network topologies

https://www.youtube.com/watch?v=4ZaTa_IQM_E

Revision Activity 2.3

1. Read the statement and tick the box True or False.

	True	False
a) The advantage of ring configuration is that a failure of one node can take the entire network out of operation.	True	False
b) The advantage of using a bus configuration in smaller networks is that it is a simple layout where all the devices are connected to a single cable.	True	False
c) The use of a bus configuration in a network layout makes it cost effective as it runs with a single cable.	True	False

The bus configuration is also known as line topology.

A disadvantage of the bus configuration is that if you have a lot of devices connected to a single cable, the network can become slow.

Step-by-step worked examples.

Assessment 5

Class Test

- List the three types of transmission methods found in a local area network and give a short description of each.
- Choose one of the three transmission methods you listed above and draw a flow chart showing the layout of this method. Remember to use arrows to show the direction of data flow correctly.

Assessment 6

Take-Home Assignment

Topic: LAN switching techniques

On your own time, research and find one example of a LAN switching scenario. Answer the following questions:

- Identify the type of transmission method in this LAN and justify your answer.
- Identify the type of LAN switching used in this scenario and justify your answer.
- Identify and explain one advantage of this switching type.
- Identify and explain one disadvantage of this switching type.

Unit 4.4 Virtual local area networks (VLANs)

- There are two main types of Wide Area Networks (WANs):
- Peer-to-Peer (P2P) networks, and
 - Virtual Private Networks (VPN).

Unit 11.1: Wide area computer networks

A **wide area network (WAN)** is a data communications network that covers a large geographic area and often uses transmission facilities provided by telephone companies. WAN technologies function at the lower three layers of the OSI model:

- the physical layer,
- the data link layer, and
- the network layer.

Definition: A **wide area network (WAN)** is a telecommunication network that extends over a large geographical area for the purpose of computer networking. The Internet is the best-known example of a WAN.

Wide area networks are used to connect LANs and other types of networks and computers in one location can communicate with users in other locations. Organisations, including business, education and government, use WANs to relay data to staff, students, clients, buyers, and suppliers. This type of communication allows a business to effectively manage its operations.

E-resources such as YouTube videos and websites are provided.

Regular Assessments and Activities improve retention.

Terminology expanded in Definition boxes.

9781485832539

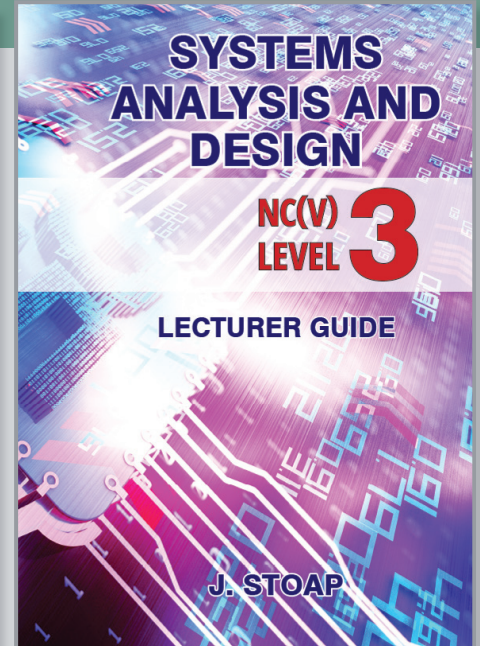
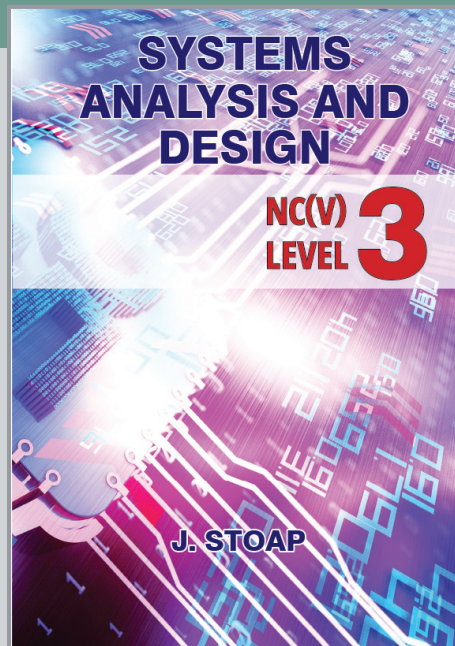
DATA COMMUNICATION AND NETWORKING NC(V)4
STUDENT TEXTBOOK

SYSTEMS ANALYSIS AND DESIGN NC(V)3

Shuters Systems Analysis and Design NC(V)3 has been written according to the latest syllabus.

The *Student Book*, written in clear, accessible language, provides a first introduction to organisation systems, information systems and how systems are linked together. Through examples, case studies and activities, the students become familiar with the complexities of this area of study, and develop critical thinking and problem solving skills.

The *Lecturer Guide* provides extensive material to assist lecture preparation and presentation, together with useful electronic resources.



The *Lecturer Guide* has FREE online digital resources, including Extra Activities and Past exam papers.

...ated to a specific project. Indiv...
...administrative expenses. These are paid for by the...
...that proportion, if any, must be allocated to a particular p...
...must be paid whether or not there is production, like rent and insuran...
...how much is actually produced, like raw materials and packaging.

2 Steps to create a Cost Benefit Analysis

5.3.4 Explain and illustrate the process of Cost Benefit Analysis (CBA).

Example 5.6-A Create a Cost Benefit Analysis with Excel

A new system will cost R100 000 to implement. The estimated benefits are R40 000 per year, and the operating costs are R10 000 per year for 4 years. Create a Cost Benefit Analysis.

Start with the following basic table:

		Year 0	Year 1	Year 2	Year 3	Year 4
Description						
Annual Benefits						
Development Costs						
Annual Costs						
Benefit/(Cost)						

Processing Controls
Calculation verification
Output Controls
Retained data output to authorized users's destinations

GENERAL CONTROLS APPLICATION CONTROLS ACCESS CONTROLS RISK (incl. MANAGEMENT CONTROLS)

Figure 3.4.5 How Management Controls and IS Management Controls

Individual Activity 3.4-1 Consider Control Systems

What control systems do you think your college has in place? Into which categories do they fall?

Do you have control or security systems on your phone or computer? What does it involve?

What kind of control systems do you think will be required by a big business like Bongi's Burgers? What are the differences?

Chapter 3 Quiz

True or False

- The first step in strategic planning is to determine where the firm is as possible.
- Tactical decisions are how middle or senior managers convert their directives into performance management decisions.

LESSON PLAN: WEEK D-3

Information Technology and Computer Science SUBJECT: Systems Analysis and Design

IT, business support and control systems

Concept of Enterprise computing

planning and strategy

systems planning time frames

	Pages	Class	Home	Group	Pioneer	I/F
Decision-making	5	30				
different levels of users as part of enterprise system						
users and management use information						
What is the purpose of the system?						
What are the objectives of the system?						
What are the constraints of the system?						
What are the risks of the system?						
What are the benefits of the system?						
What are the requirements of the system?						
What are the resources of the system?						
What are the outputs of the system?						
What are the inputs of the system?						
What are the processes of the system?						
What are the data of the system?						
What are the users of the system?						
What are the roles of the system?						
What are the responsibilities of the system?						
What are the relationships of the system?						
What are the interactions of the system?						
What are the dependencies of the system?						
What are the constraints of the system?						
What are the risks of the system?						
What are the benefits of the system?						
What are the requirements of the system?						
What are the resources of the system?						
What are the outputs of the system?						
What are the inputs of the system?						
What are the processes of the system?						
What are the data of the system?						
What are the users of the system?						
What are the roles of the system?						
What are the responsibilities of the system?						
What are the relationships of the system?						
What are the interactions of the system?						
What are the dependencies of the system?						

KEY VOCABULARY

Tactical planning identifies and allocates the tasks required to achieve strategic objectives with the designated resources.

Accountability Responsibility for your own results and the results produced by the people who report to you.

Autonomy Authority to make decisions in the absence of direct supervision.

Worked examples expand Subject Outcomes.

Activities reinforced in comprehensive end-of-chapter Quizzes.

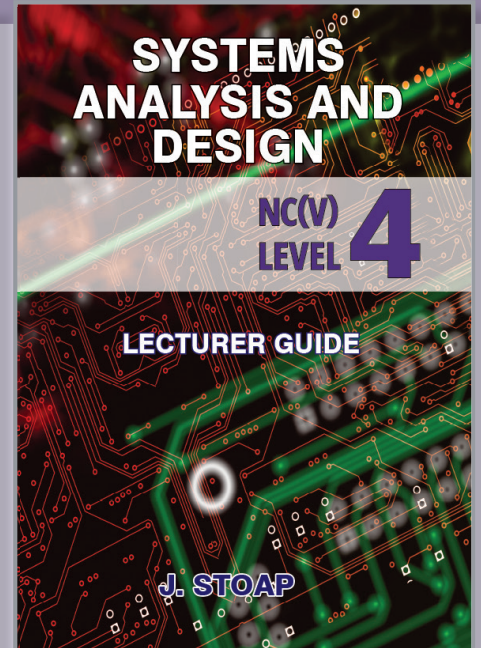
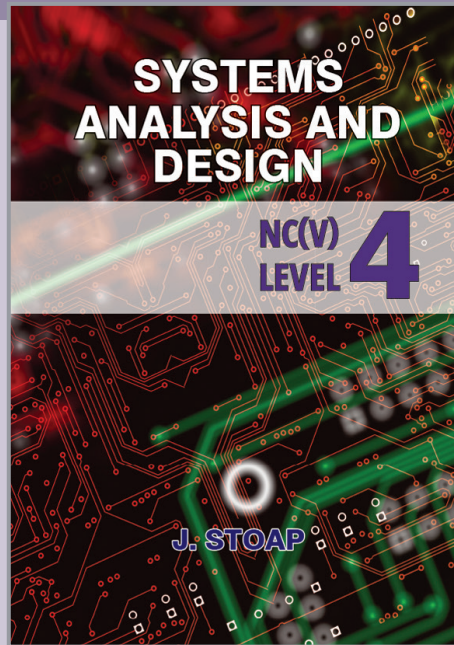
Over 100 Lesson Plans in the Lecturer Guide.

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9781485834182	SYSTEMS ANALYSIS & DESIGN NC(V)3 LECTURER GUIDE

SYSTEMS ANALYSIS AND DESIGN NC(V)4

Shuters Systems Analysis and Design NC(V)4 has been written according to the latest syllabus. Based on the knowledge acquired in Level 3, this *Student Textbook* expands further into the subject. Clear, accessible language and up-to-date examples help students to master the subject content: how to conduct a systems analysis, and to design information systems. Using examples, case studies and activities, the students develop their critical thinking and problem solving skills.

The *Lecturer Guide* provides extensive material to assist lecture preparation and presentation, together with useful electronic resources.



The *Lecturer Guide* has FREE online digital resources, including Extra Activities and Past exam papers.

Fostering equal opportunity in the computer industry

1.3.1 Explain how the computer industry supports the concept of equal opportunity.

1.5.1 How the computer industry supports the concept of equal opportunity

Early in January 2004, the Broad-based Black Economic Empowerment Act (53 of 2003) was signed by the President and published in the Government Gazette (25899).

Its preamble says:

WHEREAS under apartheid race was used to control access to South Africa's productive resources and access to skills;

WHEREAS South Africa's economy still excludes the vast majority of its people from ownership of productive assets and the possession of advanced skills;

WHEREAS South Africa's economy performs below its potential because of the low level of income earned and generated by the majority of its people;

AND WHEREAS, unless further steps are taken to increase the effective participation of the majority of South Africans in the economy, the stability and prosperity of the country in the future may be undermined to the detriment of all South Africans;

STUDENT DATABASE

Collection of related tables or files.

Collection of related rows. Each row represents a record or transaction.

Group of fields or attributes representing a particular event or object.

Route of something, with a link. Usually made up of a number of characters.

Unit of bytes. Can be numeric, alphabetic, or a special character.

Unit of bits (8 or fewer for characters).

digit, either 0 or 1.

Smallest amount of information that is stored.

Figure 6.1.1 The hierarchy of data in a database and its components.

How Relational Databases work

44.1 Discuss the concept, components and origins of relational databases.

LESSON PLAN: WEEK C-5

Information Technology and Computer Science SUBJECT: Systems Analysis and Design

Learning techniques for computer systems development

Documents for computer system development

Information systems

different techniques and tools used for documenting

Application of the Structured development technique

	Pages	Class	Home	Group	Pioneer	I/F	Theory	Practical
documents	0							
source document							3	
source documents could be used as part of the analysis and data							3	
characteristics of the data and relationships between data items								0
involved as part of the traditional (or structured) analysis and design								
points (or descriptions) towards the identification of entities, attributes and								
used in businesses	0		60					
business source documents								
2-A: Evaluating origins of source	0							

KEY VOCABULARY

Subject outcomes identified and expanded

Diagrams simplify complex learning exercises.

Over 100 Lesson Plans in the Lecturer Guide.

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9781485834199 SYSTEMS ANALYSIS & DESIGN NC(V)4 LECTURER GUIDE

Ace it!



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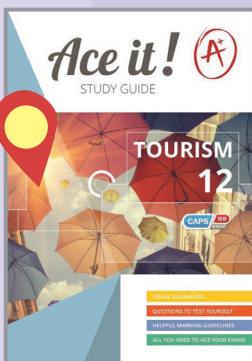
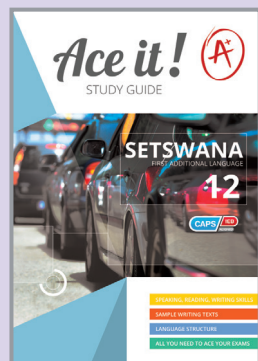
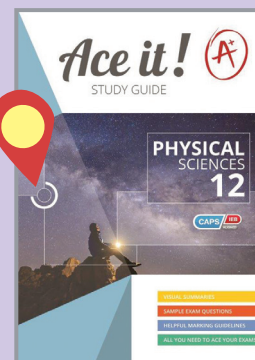
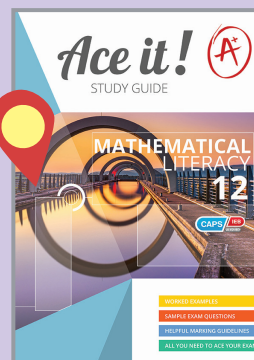
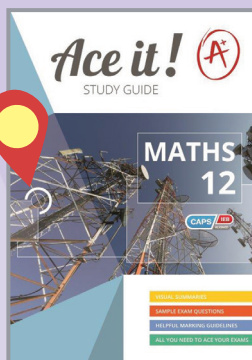
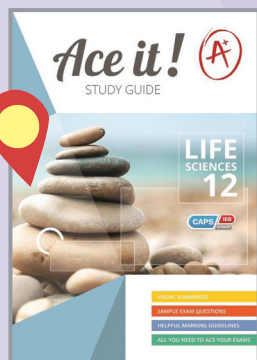
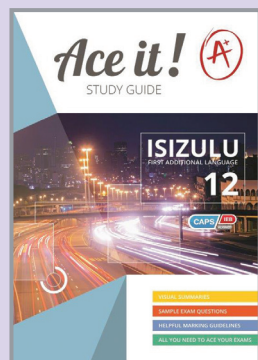
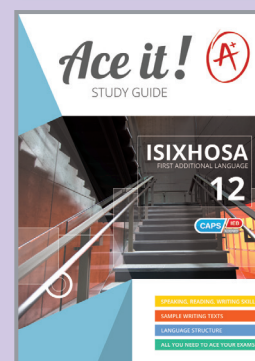
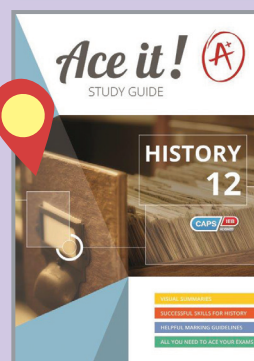
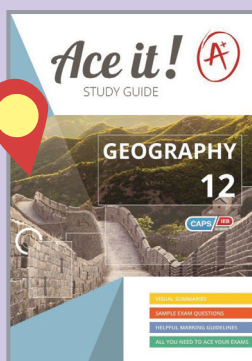
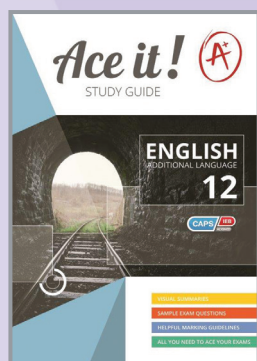
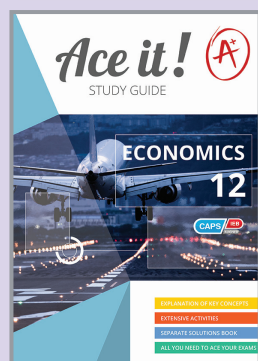
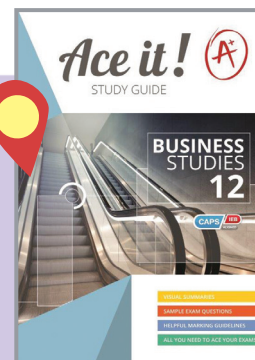
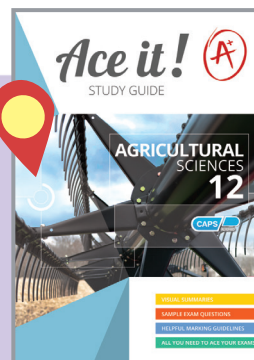
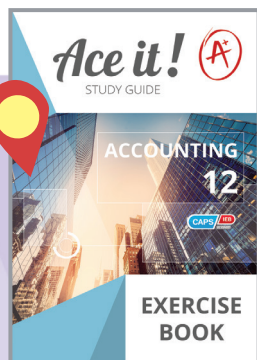
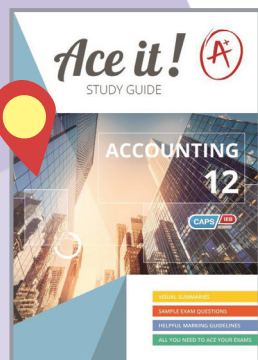
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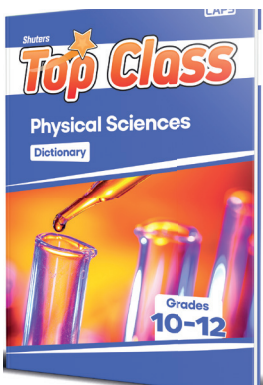
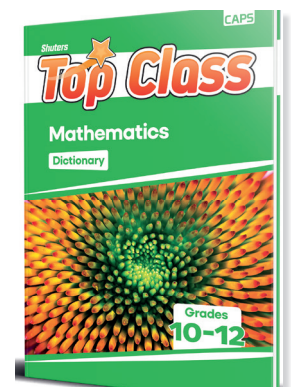
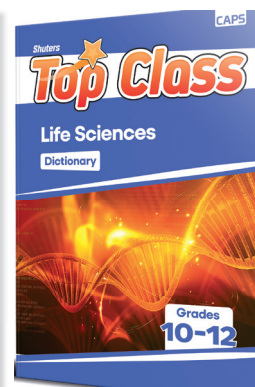
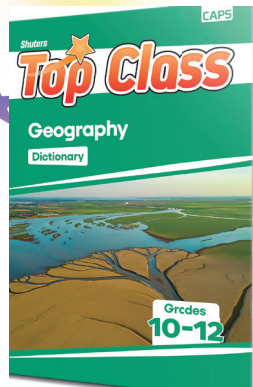
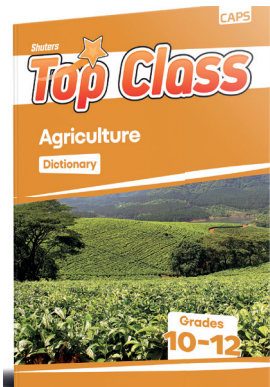
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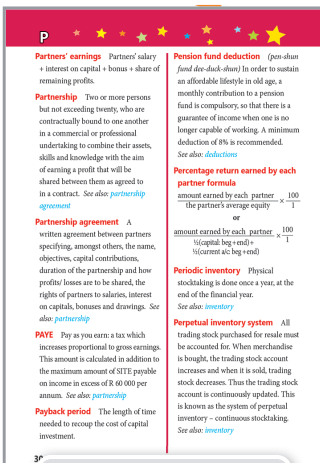
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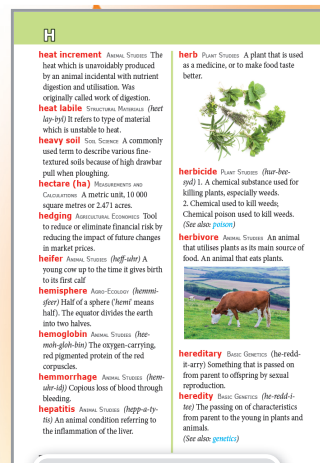
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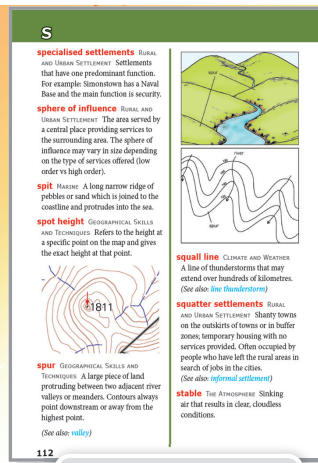
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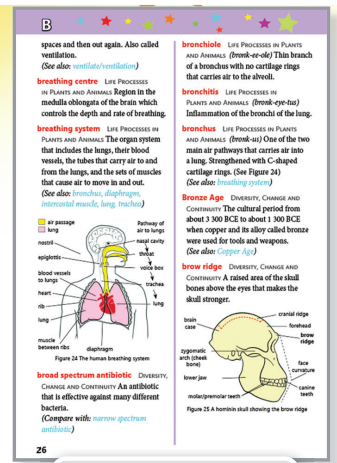
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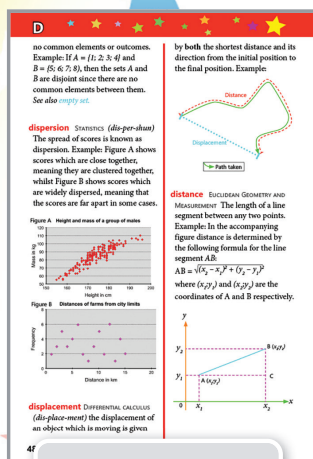
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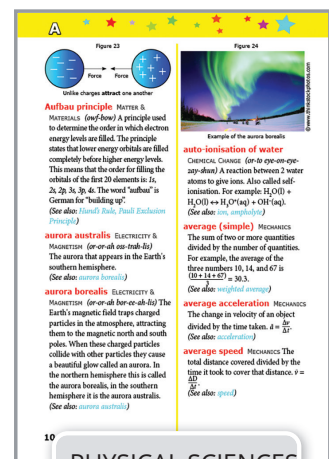
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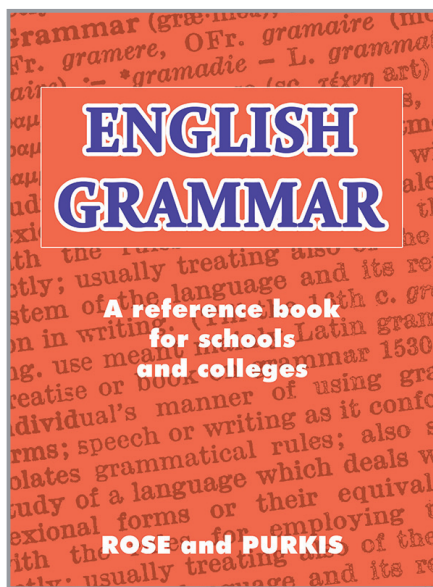
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- Covers all words and concepts as required by the current CAPS curriculum for Grades 10, 11 and 12.
- Concepts explained in accessible language.
- Pronunciation for difficult words.
- Cross-references the words and topics.



MATHEMATICS



PHYSICAL SCIENCES



2A - THE SENTENCE

WORD ORDER

In some languages, the order in which words occur in a sentence is unimportant, and does not affect meaning. In English, words in a sentence have meaning because of their position and their order. Change the position or the order and you change the meaning. 'The boy kicked the tall man' does not have the same meaning as 'The tall man kicked the boy' which is different from 'The man kicked the tall boy'. 'Kicked tall the man the boy' has no meaning.

The normal word order in English is:

Predicate
 Subject Verb Object

- (a) The **subject** is a noun, pronoun or noun phrase (see page 40) about which a statement is being made.
e.g. My diary has a golden lock.
The boy with the Rottweiler caught the burglar.
- (b) The **verb** has been dealt with under 'Parts of Speech' (pages 6-11).
- (c) The **object** is the name given to the noun or pronoun to whom (or which) the action of the verb was being done:
e.g. The donkey ate the carrot.
The prisoner denied the charge.

The object is of TWO kinds:

- (i) **direct object**, when the action of the verb directly affects a person or thing:

A reference book for schools and colleges.
Topics include: the word, word groups
and the sentence, the paragraph and
special uses of language.

3 - THE PARAGRAPH

THE TOPIC SENTENCE

- (a) We have seen that words have no grammatical function until they are used in a sentence. Thus the sentence can be defined as the unit of language.
- (b) In the same way, the paragraph is the unit of thought in a piece of writing. Every sentence in a paragraph must relate to the main thought or topic of the paragraph: it is the unit of thought.
- (c) Obviously it will help the reader of your compositions if somewhere in each paragraph you state what its central thought is. This statement of the theme of the paragraph is called the *topic sentence*. It may come anywhere in the paragraph but more often than not is the opening sentence.

Note - The topic sentence in each of the above paragraphs has been printed in italics.

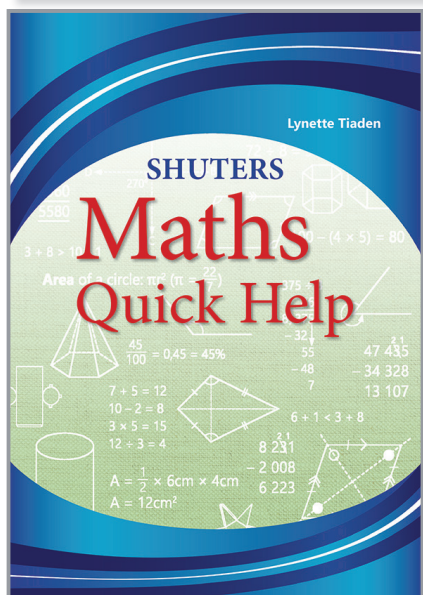
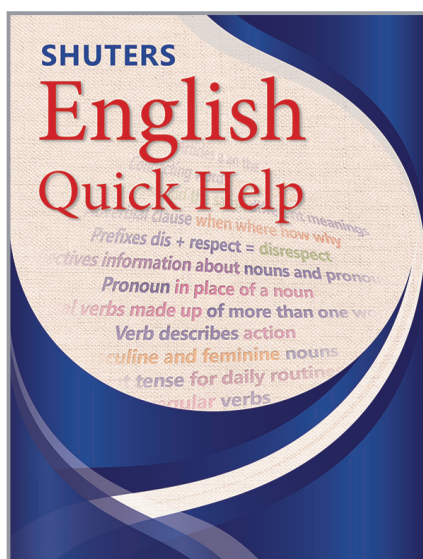
TYPES OF PARAGRAPH

There are THREE types of paragraph:

- (a) **Loose**
A loose paragraph is where the topic sentence is placed at the beginning. Having clearly stated the main thought at the beginning, the writer can consider examples or explanations in the rest of the paragraph.
e.g. paragraph (b) of 'The Topic Sentence' above.

middle of the paragraph (e.g. paragraph (c) of 'The Topic Sentence' above). Sometimes it is necessary to build up to the statement which supports this statement by examples or to

page 44) where the main clause is at the end of a paragraph as a topic sentence at the end. (e.g. paragraph (c) of 'The Topic Sentence' above). This enables the main thought of the paragraph when it is reached it can be readily understood and



Non-finite verbs

Non-finite verbs do not have subject, number or tense. They do not stand alone in a sentence. You get different types of non-finite verbs:

- Infinitives
- Participles: past participles and present participles.

Here is a summary of these verbs:

Infinitive	Past Participle	Present Participle
Always starts with to An infinitive must have a finite verb in front of it in order to make sense: I want to walk.	Regular verbs: simple past tense form: add -ed; Irregular verbs: new form These verbs follow auxiliary verbs such as had, has, have, was, were I had walked to the office. I have bought you a present.	Base word + continuous form: -ing A present participle needs an auxiliary verb in order to make sense in a sentence: I am walking towards you.
to walk to bark to be to become	walked barked been became	walking barking being becoming

Notepad: Even though the participles are called past and present they do not belong in any tense. For example: I was studying when you phoned. (It took place in the past, but uses a present participle: studying.)

42

Percentages

A percentage is a fraction out of 100. We only write the numerator, followed by a percentage symbol: %.

For example: $\frac{23}{100} = 23\%$ and $\frac{7}{100} = 7\%$

Method to convert percentages to common fractions

For example: 84%

1. The digits before the % sign are the numerator of the fraction. The denominator is always 100.

$$84\% = \frac{84}{100}$$

2. Simplify the fraction.

$$84\% = \frac{84 \div 2}{100 \div 2} = \frac{42 \div 2}{50 \div 2} = \frac{21}{25}$$

Method to convert common fractions to percentages

For example: $\frac{3}{20}$

1. Find the number that you must multiply by the denominator to make it 100.

$$20 \times 5 = 100$$

2. Find an equivalent fraction for $\frac{3}{20}$ with 100 as the denominator. Multiply the numerator and denominator by 5.

$$\frac{3}{20} = \frac{3 \times 5}{20 \times 5} = \frac{15}{100}$$

3. Write only the numerator and a percentage symbol.

$$\frac{3}{20} = 15\%$$

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MATHS QUICK HELP

This basic Mathematics manual provides:

- A dictionary of mathematical terms,
- Clear explanations of methods and formulae,
- Strategies for solving problems.

Uses plain, simple English and examples. Use it when learning for a test or exam or doing homework.

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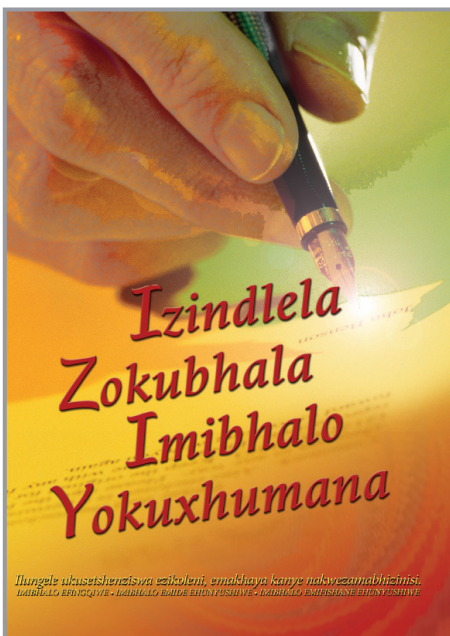
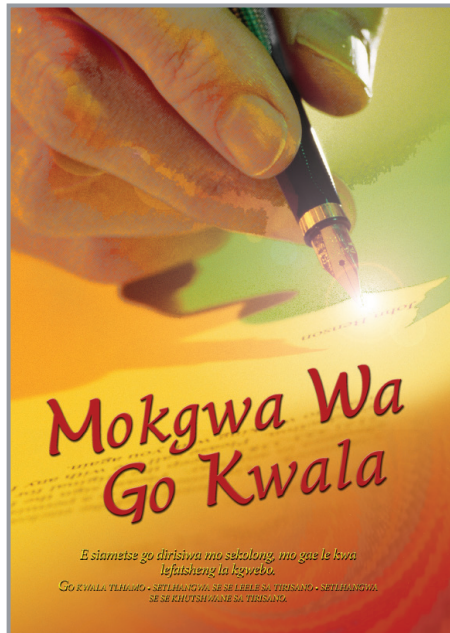
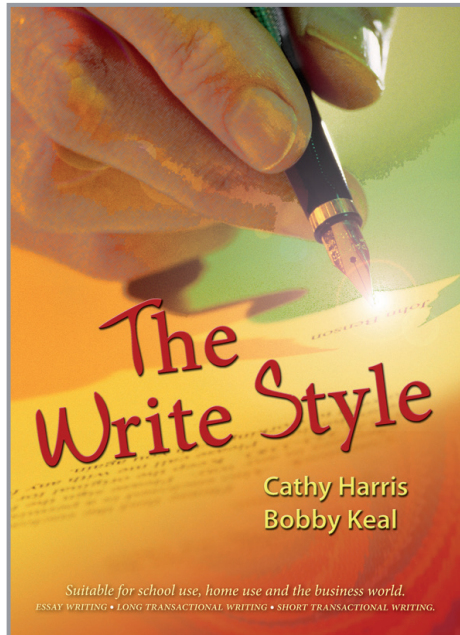
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THE WRITE STYLE MOKGWA WA GO KWALA IZINDLELA ZOKUBHALA IMIBHALO YOKUXHUMANA

A hands-on reference tool and teaching aid aimed at structuring the most common writing tasks required in schools and in the business world.

Each genre has: Model text; Genre-specific criteria; Language and structural requirements; Evaluation summaries.

STRUCTURE (Cont)	FRIENDLY LETTER (Cont)	LANGUAGE (Cont)
First paragraph gives background and reason for writing: To give thanks for the generous gift	Thank you so much for your extremely generous gift of five hundred rand. It was such a wonderful surprise to see you and Uncle Jacob last Sunday when I was visiting Mum and Dad, and I was so glad you could both join us for my birthday lunch. You're looking younger and younger every year, and it is difficult to believe you're turning eighty in a few days time.	Informality is shown with contractions: You're Personal pronouns indicate close relationship between correspondents: I; you; your; my
Expansion on reason for writing: I went to the shopping mall	It was such fun spending my birthday money from you. After a hard week at work, my friends and I went shopping at the mall on Saturday . Your money allowed me to buy a beautiful maroon jersey, which I had been admiring at Truworths for a long time. I have already worn it, and it's as soft and snuggly as it looks. The rest of the money was spent on a delicious meal at Spritzas. It really was an awesome morning. Thanks so much!	Use of colloquial expressions shows informal tone: such fun; snuggly; awesome; thanks Use of simple past tense to recount events: went; had; allowed; have worn; was spent, was Use of exclamation mark shows informality
General news and reference to common knowledge indicates close relationship: Uncle Jacob; the Christmas period; the beach; together as a family.	I look forward to seeing you both over the Christmas period . Please do try to come to the beach with us, as this will be the last time we'll all be together as a family , since Spha and Londi are leaving for their long-awaited travels at the beginning of January – I only hope they don't get lost, after what happened last year!	Use of humour emphasises informality: I only hope they don't get lost, after what happened last year!
Concluding paragraph is brief and relates back to reason for writing: Thank you	Once again, thank you so much for your generosity.	
Informal salutation. Lots of love No surname is included where the relationship is close. Happiness	Lots of love Happiness	
EVALUATION: The criteria for this genre have been met. The tone is relaxed and informal, as indicated by the use of humour, contractions, and colloquialisms. The address, salutation, and greeting are present and correctly laid out. The letter consists of more than three paragraphs.		

9780796042262

THE WRITE STYLE

9780796038616

MOKGWA WA GO KWALA (*The Write Style: Setswana*)

9780796043313

IZINDLELA ZOKUBHALA IMIBHALO YOKUXHUMANA
(*The Write Style: IsiZulu*)



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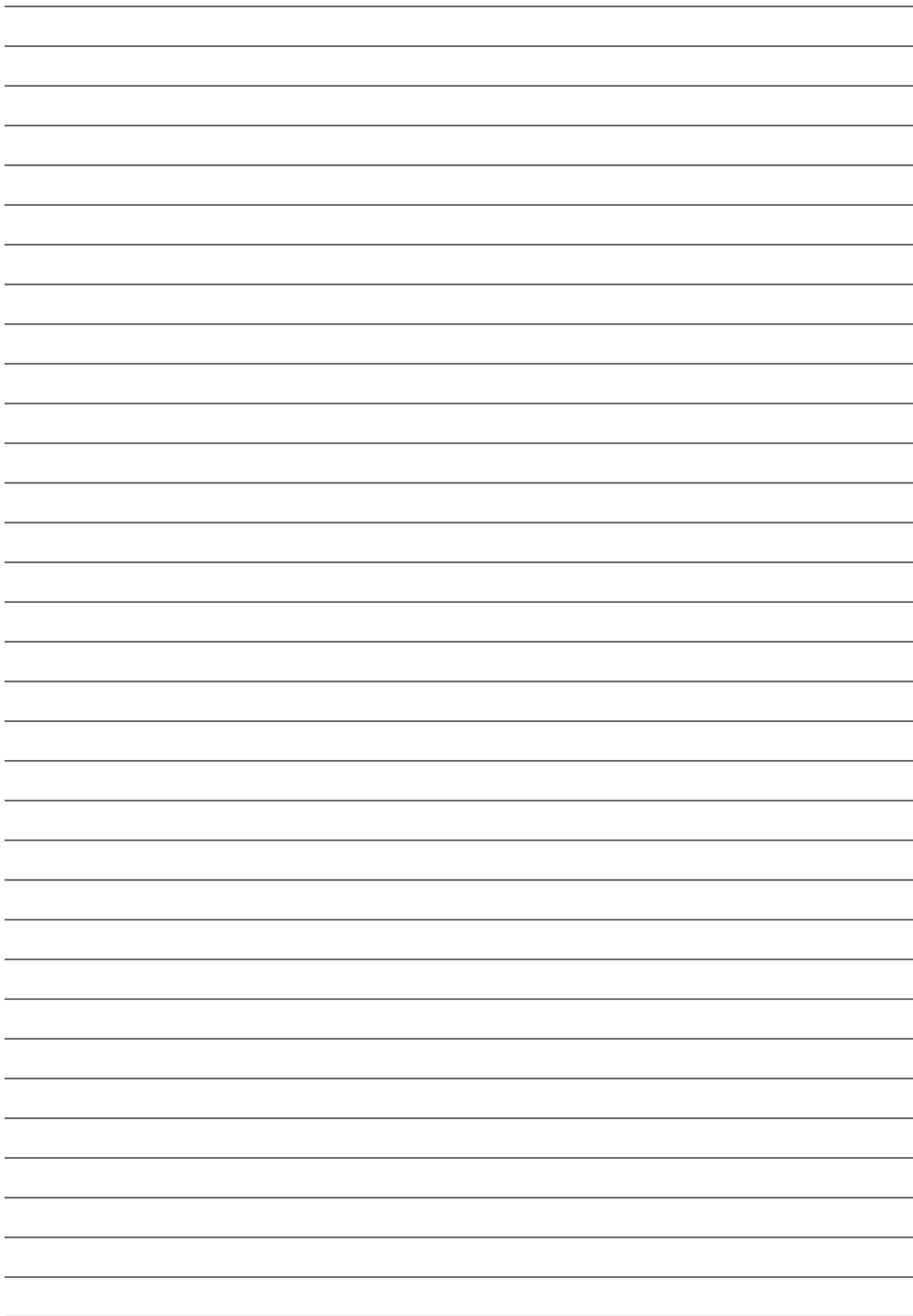
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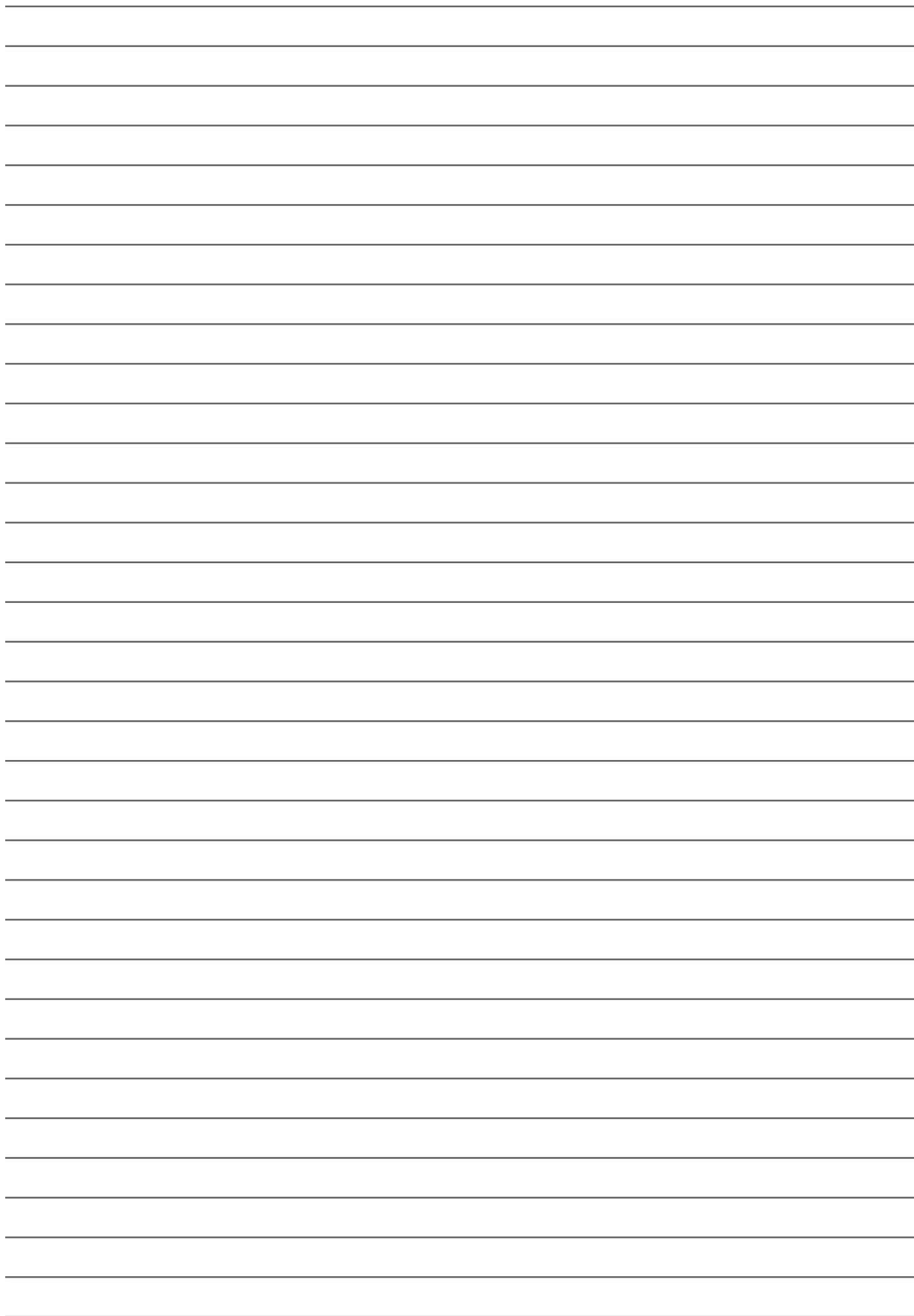
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