INTEGRATED ACCOUNTING ON MICROCOMPUTERS

KLOOSTER & ALLEN

THIRD EDITION

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PREFACE

Today's technology provides a means by which nearly every educational institution can justify the cost of offering students a hands-on approach to computers. The abundance of inexpensive microcomputers has made this possible. The same abundance of inexpensive microcomputers has made it possible for many more businesses and governmental agencies to use computers to assist in keeping their accounting records. Thus, it is even more important that accounting students be exposed to computerized accounting procedures. The programs on the *Integrated Accounting on Microcomputers* diskette enable students to learn how computers are used in today's businesses. The ease of running these programs removes the technical obstacles of using the computer so that even the first-time computer user can concentrate on the accounting applications.

MAJOR FEATURES

The *Integrated Accounting on Microcomputers* package, composed of a text-workbook and a diskette, provides a realistic approach to computerized, integrated accounting principles. It consists of seven major accounting systems commonly found in computerized accounting environments. These seven systems are the general ledger, accounts receivable, accounts payable, financial statement analysis, depreciation, inventory, and payroll systems.

HIGHLIGHTS OF CHANGES IN THE THIRD EDITION

The third edition of *Integrated Accounting on Microcomputers* has retained many features that made the first two editions so successful. Through user feedback and technological changes during the second edition, however, the following changes have been implemented:

(1) An inventory system has been added to the software, and a chapter on inventory has been included in the text-workbook.

(2) The software has a new user-friendly menu system. Menu items can be selected by using the directional arrow keys to move a highlight bar or by keying the letter associated with each menu item.

(3) The software has been segmented into modules of like activities to simplify use and minimize loading time.

LEARNING OBJECTIVES

This courseware package is intended for students who want to learn about computerized accounting principles. Therefore, the major objectives of this book and its associated computer software are (1) to present and integrate accounting principles in such a way that no prior knowledge of computers or computerized accounting is required and (2) to provide a hands-on approach to learning how computerized integrated accounting systems function. Each chapter identifies the learning objectives that are to be mastered. These objectives correspond to the sequence of options designed into the accompanying software.

Additional flexibility has been designed into the computer software to permit its use with most traditional accounting textbooks. The computer may be used to solve many of the manual accounting problems in these textbooks.

MESSAGE TO THE INSTRUCTOR

This package has been designed so that the material and the computer exercises presented in the text-workbook can be introduced gradually. In this way, experience can be gained with each of the system components prior to working with the entire system. Each chapter (except Chapter 1) contains a sample problem. Each chapter (except Chapter 1) also contains a student exercise, an additional problem, and an audit test to ensure that students comprehend the subject matter. This approach permits the students to work independently and at their own rates. In addition, the software's ability to solve many other accounting problems for other businesses means that the only limitations are students' imagination and desire to learn. An instructor's manual is provided to assist you, the instructor, while using *Integrated Accounting on Microcomputers*. The Inspector Disk, a solutions disk, is available to check your students' solutions against the solutions provided on the Inspector Disk.

MESSAGE TO THE STUDENT

Each system is designed so that the computer-generated output, the integration processes, and the accounting procedures are very similar to those currently used in business and industry, whether the business systems use large mainframe computers or small microcomputers. The significant difference between the system used in this package and an actual business system is the simplicity of computer operation.

When a business or industry uses a computerized system to control such valuable assets as cash and accounts receivable, very tight controls are maintained on security, data entry, and audit trail procedures. These controls complicate the operation of a computerized system. Some of these restrictions have been intentionally omitted from this package in the interest of simplifying the operations and providing a usable educational tool.

AUTHORS

Dale H. Klooster is an author of educational courseware products and co-owner of Educational Technical Systems of Cincinnati, Ohio. For four years, he was affiliated with a major publishing company. In addition, he spent six years working with various computer systems in business and industry and thirteen years as an educator in the field of computer information systems. He has also been a consultant to many businesses and educational institu-

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Dr. Klooster has coauthored *Automated Accounting for the Microcomputer, Integrated Accounting on Microcomputers*, an information processing textbook, several accounting simulation courseware packages, and many other stand-alone educational software packages. He has received numerous awards and certificates of service and appreciation from state and national educational organizations throughout the United States for his consultations, seminars, and lectures.

Warren W. Allen is an author of educational courseware products and co-owner of Educational Technical Systems of Cincinnati, Ohio. For fourteen years, he taught accounting and computer programming. He has designed, developed, and installed numerous computerized accounting systems for businesses and governmental organizations. He earned his B.S. degree from Southern State College in Springfield, South Dakota, and his M.S. degree from the University of South Dakota in Vermillion, South Dakota.

Mr. Allen has coauthored *Automated Accounting for the Microcomputer, Integrated Accounting on Microcomputers*, an information processing textbook, several accounting simulation courseware packages, and many other stand-alone educational software packages.

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COMPUTER CONFIGU- RATIONS

The *Integrated Accounting on Microcomputers* package is available for the IBM® PC, IBM® PCjr®, IBM® Personal System/2,®[1] and the Tandy® 1000[2] microcomputers. Students will need a formatted data diskette to store their problem data. The minimum configuration for each computer supported is as follows:

(1) If you are using an IBM PC or IBM Personal System/2, 256K-minimum memory running under DOS 2.0, 2.1, 3.0, 3.1, or 3.3, one monitor and one dual-sided disk drive are required. Access to an 80-column, continuous-feed printer is optional but recommended.

(2) If you are using an IBM PCjr, 256K-minimum memory running under DOS 2.1, one monitor and one dual-sided disk drive are required. Access to an 80-column, continuous-feed printer is optional but recommended.

(3) If you are using a Tandy 1000, 256K-minimum memory running under DOS 2.11.22, 2.11.24, or 2.11.26, one monitor and one dual-sided disk drive are required. Access to an 80-column, continuous-feed printer is optional but recommended.

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[1]IBM, PCjr, and Personal System/2 are registered trademarks of International Business Machines Corporation. Any reference to IBM, IBM PC, PCjr, or Personal System/2 refers to this footnote.

[2]Tandy is a registered trademark of Tandy Corporation. Any reference to the Tandy 1000 refers to this footnote.

(4) All of the menus for all of the systems are accessible from any of the software modules. Therefore, regardless of which module you are in, you can move through all of the menus without loading additional modules.

(5) A full-screen, multiple transaction, data entry approach is used for all accounting system transactions. The accounting transaction data entry screens use a spreadsheet-like approach that allows you to key-enter multiple transactions on each screen. In addition, you can insert and delete transactions as well as page forward and backward through the transactions. This approach greatly simplifies and speeds up the transaction entry and correction process.

(6) Chart of accounts, customer, and vendor entries can be added during data entry. Thus, as you are key-entering a transaction, if the account number is not currently on file, you can add it to the file from the transaction screen without exiting and going to the file maintenance data entry screen.

(7) Student data is stored on a separate, formatted data diskette. This technique provides much more flexibility in that you can now store work in progress for more than one problem at a time. You can save multiple versions of a problem to disk at any time.

(8) The general ledger integration summary has been expanded.

(9) A comprehensive problem has been added. This problem is in Appendix C.

(10) A statement of cash flows has been added.

(11) Separate data entry screens are used for sales on account and cash receipts.

(12) A solutions disk, the Inspector Disk, has been added. This disk compares the students' data files with the solutions on the Inspector Disk and prepares a report showing any discrepancies. The Inspector Disk is available to the instructor upon request.

ORGANI-ZATIONAL FEATURES

Chapter 1 in the text-workbook discusses the impact of the computer on accounting procedures and identifies some of the major differences between manual and computerized accounting systems. It defines the standards, capabilities, limitations, and flexibility of the software on the accompanying diskette. The remaining chapters are a computer user's guide containing sample screen displays, transaction input forms, sample problems, student exercises, computer-generated output, laboratory problems, supplemental problems, and descriptive step-by-step instructions for operating each major computerized system. These chapters define what each system does and how each system interrelates with other systems. In addition, fundamental data processing terms are defined in the context in which they are used throughout the text. Appendix A provides the first-time user with basic start-up procedures. Appendix B contains an alphabetical list of error messages with a description of the cause of each error and the operator action needed to correct the error. Appendix C contains a comprehensive problem.

CONTENTS

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INTRODUCTION TO INTEGRATED ACCOUNTING

Upon completion of this chapter, you will be able to:

1. Describe differences between manual and computerized accounting methods.
2. Show how to care for and handle a diskette.
3. Respond to the computer using the proper keyboard keys, system rules, and standards.
4. Identify the process of accounting system integration.
5. Recognize and respond to error conditions.
6. Perform accounting system setup.
7. Set date, company name, and report identification.
8. Describe how to select problems from the diskette.

INTRODUCTION

Rapid advances in computer technology over the past four decades have had a significant impact on our present day society. The technical accomplishments of the last few years are good indicators of what the computer has to offer in the future.

Recently, the number of computers and the ways in which they are utilized have increased tremendously. Several factors have made this possible:

(1) The cost of the equipment has decreased due to new and more efficient methods of manufacturing.

(2) Small-scale, yet very powerful, inexpensive microcomputers now make it financially possible for small businesses to purchase microcomputers.

(3) The number of home/personal computers has greatly increased and therefore contributed to the general public's better understanding of computer capability and use.

(4) More uses of the computer are being, and have been, developed to take advantage of the computer's potential and capabilities.

Many businesses (including small businesses) have turned to the computer to help control costs and manage their financial resources. Data is abundant, but it is the manipulation of this data and its arrangement into a usable form of information that makes the computer especially attractive as a management and production tool. Such information, if used properly, can be a significant aid to management in decision making and can facilitate efficient and profitable operation of the company.

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Today, professional business managers and accountants need to know about computers because of the effectiveness of computers in accounting applications. Thus, as a student planning to enter a business profession, you can expect to work with a computer and computerized systems.

This book gives you the opportunity not only to learn about computerized accounting applications but also to use these applications with a computer system. A **system**, as used in the remainder of this text, is defined as a collection of procedures working together to form an organized whole for the purpose of accomplishing specific accounting functions.

MANUAL VERSUS COMPUTERIZED ACCOUNTING

In manual accounting systems, all accounting records must be prepared by hand, perhaps with the help of a calculator. Business transactions, such as invoices and checks, are recorded in journals. The transactions are then posted manually from the journals to the general ledger accounts and various subsidiary ledgers. At the end of each accounting cycle, a work sheet is prepared, and adjusting entries are journalized and posted. Financial statements and various other accounting reports are prepared from the ledgers.

A computerized accounting system is divided into various components based on function. The number of components depends on the sophistication of the accounting system, the type of business (manufacturing, retail, wholesale, etc.), and the size of the business. The components of the computerized accounting system utilized in the *Integrated Accounting on Microcomputers* software are (1) general ledger, (2) accounts receivable, (3) accounts payable, (4) financial statement analysis, (5) depreciation, (6) inventory, and (7) payroll. All but three of these components (depreciation, inventory, and payroll) are integrated. **Integration** occurs when a transaction is entered into one component and the computer generates the related transactions needed by the other components. The net effect of the integration is that a transaction must be entered only once. In a manual accounting system, however, it is often necessary to record the same figure numerous times. For example, a single sale would require the invoice amount to be recorded in a journal, posted to the general ledger, posted to a subsidiary ledger, and recorded on the monthly statement of account if unpaid at the end of the month. In a computerized accounting system, only one entry would be entered to record the sale. The computer would then perform the required integration so that no further recording of the transaction would be necessary.

Some of the advantages of a computerized accounting system over a manual system are:

(1) The computer can immediately post transaction data so the balances of the accounts are always current.

(2) The computer can perform calculations at fantastic speeds. It rarely makes mistakes, and it is programmed to catch many errors at the time transactions are entered.

(3) The computer can prepare the financial statements immediately at the close of the accounting period, or at any other time desired, because the balances in the accounts are always current.

(4) The computer can arrange accounts in different sequences, compute subtotals and totals, and print these accounts and amounts.

(5) The computer can rapidly and neatly display and print accounting reports on an attached display screen and printer.

A computer accepts data, processes it, and provides informational results. A computer can do none of these tasks without a set of instructions called a program. A **program** is a series of instructions that directs the computer to achieve a certain result. The programs used with this text consist of over 18,000 detailed instructions telling the computer how to accept data, recognize various types of errors, process data from each transaction, prepare reports, and communicate with the operator.

Just as in a manual accounting system, each transaction in a computerized accounting system must be analyzed for errors and completeness. It is necessary to identify and correct errors before computer processing to prevent creating incorrect accounting reports. Therefore, to take full advantage of the capabilities of the computer system, it is important that you be as careful as possible in providing the computer with the data you want it to process.

PROPER CARE AND HANDLING OF THE DISKETTE

The *Integrated Accounting on Microcomputers* text-workbook requires the availability of a microcomputer with at least one disk drive attachment. A **disk drive** connects to the computer (or is built into the computer) in such a manner as to permit the storage of computer programs and data. A diskette that is inserted into the disk drive then becomes the medium on which programs and/or data are stored. Without these programs and accompanying data, the computer cannot perform its automated accounting tasks. Therefore, proper care and handling of the diskettes and disk drive(s) will prevent the loss of programs and/or data. Here are a few helpful hints:

(1) Do not bend or fold the diskettes.

(2) Do not write on the diskettes with a hard or sharp-pointed pen or pencil.

(3) Do not touch any of the exposed surfaces of the diskettes with your fingers.

(4) Be sure the disk drive is not running (red indicator light is out) when you insert or remove the diskettes.

(5) Keep the diskettes away from extreme hot and cold temperatures.

(6) Keep the diskettes away from all magnetic fields (telephones, typewriters, etc.).

(7) Keep the diskettes in the storage envelopes whenever possible to protect them from the environment.

(8) Keep the diskettes away from smoke, ashes, and dust (including chalk dust).

(9) Do not leave the diskettes in the disk drive with the door closed for a prolonged period of time (overnight).

(10) Keep the diskettes away from X rays. Have your diskettes examined visually at airport security checkpoints.

KEYBOARD OPERATION

The keyboard of your microcomputer is similar to that of a typewriter. However, the microcomputer has several keys that are not available on a typewriter. Several of these keys direct the computer to perform certain control functions when they are pressed.

Highlight Bar

Even though the highlight bar is not a key on the keyboard, it is controlled through keyboard operation. The highlight bar is a reverse field used to select menu options and to indicate where data will be displayed as it is entered from the keyboard.

ENTER/RETURN

Different computer manufacturers use different names for this key. For example, one system may use a key labeled ENTER, while the same function is accomplished on another system with the RETURN or bent arrow (◄──┘) keys. Note that on the IBM PC both the (◄──┘) and Plus (+) keys have been programmed to perform the same function. In this system, the ENTER/RE-TURN key is used for three purposes: (1) to advance the cursor to the first position of the next field of data; (2) to accept data as it appears on the display screen for processing or storage when the cursor is positioned in the last data field on the screen display; and (3) to select the currently highlighted menu item.

Escape Key

When pressed, this key (usually labeled ESC) tells the computer to exit (or escape) from where it is or what it is doing. For example, it is a convenient way to interrupt lengthy displays or printouts to save time or paper.

Left Arrow Key

Each time this key (←) is pressed, the highlight bar will move to the menu item or data field immediately to the left of the current item. If the highlight bar is currently at the first menu item or data field on the left when this key is pressed, the highlight bar will move to the menu item or data field that is on the far right. If the menu list or data entry screen contains only one column, the left arrow key is not functional.

Right Arrow Key

Each time this key (→) is pressed, the highlight bar will move to the menu item or data field immediately to the right of the current item. If the highlight bar is currently at the menu item or data field that is farthest on the right when this key is pressed, the highlight bar will move to the first menu item or data field on the left. If the menu list or data entry screen contains only one column, the right arrow key is not functional.

Up Arrow Key

Each time this key (↑) is pressed, the highlight bar will move to the previous menu item or data field. If the highlight bar is located in the first menu item or data field when this key is pressed, it will wrap around to the last menu item or data field. This wrap-around feature is a convenient shortcut method to get to the last menu item or data field.

Down Arrow Key

Each time this key (↓) is pressed, the highlight bar will move down to the next menu item or data field. If the highlight bar is in the last menu item or data field in that column when the down arrow key is pressed, it will wrap around to the first menu item or data field in that column. This wrap-around feature is a convenient shortcut method to get to the first menu item or data field.

Function Keys

The F1 (Function 1) and F2 (Function 2) keys control certain special functions. On the System Selection Menu, the F1 key controls the color windows. On data entry screens, the function keys are used to scroll the text in window displays. The window displays provide helpful information during data entry. An indicator will appear on the next to the last line of the screen when the function keys are available.

Zero

The numeric character zero (0), located on the top row of keys, appears similar to the alphabetic character "O" on the keyboard. Therefore, be careful to use the appropriate key when keying your data.

Home Key

The Home key will move the cursor to the first data field within any of the data entry screens. For those data entry screens that span several pages, pressing the Home key twice in succession will move the highlight bar to the first data field of the first page.

End Key

The End key will move the cursor to the last data field within any of the data entry screens. For those data entry screens that span several pages, pressing the End key twice in succession will move the highlight bar to the last data field of the last page.

PgUp Key

The PgUp key (Page Up) is functional only for those data entry screens capable of spanning several pages. Pressing the PgUp key will display the data for the previous page.

PgDn Key

The PgDn key (Page Down) is functional only for those data entry screens capable of spanning several pages. Pressing the PgDn key will display the data for the next page.

Insert Key

The Insert key (usually labeled Ins) is active only on those data entry screens that display multiple transactions at one time. The Insert key allows the insertion of a transaction between two existing transactions.

Delete Key

The Delete key (usually labeled Del) is active only on data entry screens. The Delete key allows the deletion of a transaction.

Ten-Key Pad

Using the microcomputer's ten-key pad may speed up data entry for keying numeric data. To use the ten-key numeric pad on the IBM PC, press the Num Lock key. This activates the numeric pad but deactivates the arrow keys as well as the PgUp, PgDn, Home, End, Insert, and Delete keys. (These keys are dual-function keys used in conjunction with Num Lock and numerals.) To use these keys on the ten-key pad when in numeric lock mode, hold the Shift key down and press the desired key. The Plus key (+) functions like the ENTER key, which facilitates the use of the ten-key pad.