Preface

The Complete A+ Guide to PC Repair is intended for one or more courses geared toward A+ Certification and Computer Repair. It covers all the material needed for the following exams: CompTIA A+ Essentials 220-701® and CompTIA A+ Practical Application, 220-702®. The book is written so that it is easy to read and understand because concepts are presented in building-block fashion. The book focuses on hardware, software, basic networking, and computer security.

Some of the best features of the book include the coverage of difficult subjects in a step-by-step manner, carefully developed graphics to illustrate concepts, photographs to demonstrate various technologies, reinforcement questions, critical thinking skills, soft skills that relate to chapter material, and hands-on exercises at the end of each chapter. Also, this book is written by a teacher who understands the value of a textbook in this field.

What’s New in the 5th Edition?

- Conformity with the latest CompTIA A+ Exam requirements, including CompTIA A+ Essentials 220-701 exam, as well as the CompTIA A+ Practical Application 220-702 exam.
- New sections in almost every chapter including exercises that relate to Windows Vista.
- Emphasis on security and laptop components issues throughout all of the chapters.
- Added tools and exercises on topics such as subnetworking, more wireless networking, stripping and spanning of hard drive volumes, and use of dual monitors.
- Printers and video chapters integrated into a single peripheral devices chapter.
- Changed the serial devices chapter to Internet connectivity, removing older references and material related to serial devices except for analog modems. Focuses on Internet connectivity options and configuration.
- Windows Vista integrated into the Windows XP Professional chapter. It includes all new Vista labs.
- Windows 2000 Professional chapter moved to the Companion Website.
- New look—including more technical tips and tables—makes detailed information easier to comprehend, with less wasted space in the exercise section of each chapter.
- Older technologies such as serial device configuration (except for analog modems) moved to the Companion Website.

Organization of the Text

The text is organized to allow thorough coverage of all topics, but also to be a flexible teaching tool; it is not necessary to cover all the chapters, nor do the chapters have to be covered in order.

- Chapter 1 covers beginning terminology and computer part and port identification. Chapter 1 does not have a specific soft skills section as do the other chapters. Instead, it focuses on common technician qualities that are explored in greater detail in the soft skills sections of later chapters.
- Chapter 2 details components, features, and concepts related to motherboards, including processors, caches, expansion slots, and chipsets. Active listening skills are described in the soft skills section in this chapter.
Chapter 3 deals with configuration basics for the system and the different methods used to expand a system. System resources are also explained. Avoiding a “gun slinger” mentality is a focus area for soft skills in Chapter 3.

Chapter 4 steps the student through how to disassemble and reassemble a computer. Tools, ESD, EMI, and preventive maintenance are discussed for the first time. Subsequent chapters also include preventive maintenance topics. Basic electronics and computer power are also covered. Written communication tips are provided in this chapter for soft skills training.

Chapter 5 is a basic section covering troubleshooting skills and error codes. Good communication skills are stressed as a soft skill area.

Chapter 6 covers memory concepts, installation, preparation, and troubleshooting. The importance of teamwork is emphasized as a soft skill target area.

Chapter 7 deals with storage devices including floppy drive and IDE/SCSI hard drive installation, preparation, and troubleshooting. Phone communication skills is the target area for soft skills in this chapter.

Chapter 8 covers multimedia devices including CD and DVD technologies, as well as sound cards, scanners, and digital cameras. The chapter ends with a section on having a positive, proactive attitude.

Chapter 9 deals with peripheral devices including printers and video. The soft skills focus area is ethics.

Chapter 10 handles Internet connectivity including analog and digital methods. The focus area for soft skills is mentoring.

Chapter 11 details items that are common when working in a Windows environment, including common desktop icons, managing files and folders, the registry, and working from a command prompt including commands issued from Recovery Console. Chapter 11’s soft skills area includes tips on how to stay current in a fast-paced field.

Chapter 12 is the Windows XP and Vista chapter that details how to install and troubleshoot in the XP Professional/Vista environment, including adding hardware, software, the management tools and remote management techniques. Avoiding burnout is the soft skill discussed in Chapter 12.

Chapter 13 is a chapter that introduces the students to networking. Basic concepts, terminology, and exercises make this chapter a favorite. An introduction to subnetting has been added. Being proactive instead of reactive is the focus of the soft skills section in this chapter.

Chapter 14 describes computer and network security issues including wireless network security. The exercises include file and folder security, event monitoring, and local policy creation. This chapter’s soft skills area includes tips for dealing with irate customers—always a difficult situation for new technicians.

Features

- **Easy to Understand** Each section is written in a building-block fashion that begins at the most basic level and continues on to the more advanced. Students taught using this method understand new technologies better because of a solid foundation.

- **End-of-Chapter Review Questions** Each chapter contains numerous review questions in various formats, including true/false, multiple choice, matching, fill-in-the-blank, and open-ended.

- **Chapter Soft Skills Section** In each chapter a specific skill set related to soft skills is presented.

- **Tech Tips** Each chapter contains technical tips that are useful in the real-world of PC repair.

- **Hands-On Exercises** Computer repair cannot be learned by theory and lecture alone, but is reinforced through practice and experience. Exercises at the end of each chapter help with this task by allowing students to get their hands “dirty” to master the material they’ve studied.

- **Objectives** A list of objectives is provided at the beginning of each chapter.
Terminology At the end of each chapter are the key terms that were defined and used throughout the chapter.

Soft Skills Exercises The end of every chapter includes at least two soft skills activities that relate to the chapter.

Critical Thinking Skills Every chapter includes at least two critical thinking activities that relate to the chapter material.

Supplemental Material

The following additional items are available to all readers of this book at its Companion Website (www.pearsonhighered.com/schmidt):

- Bonus chapters on Windows® 98, Windows NT Workstation, Floppy Drives, and Windows 2000 Professional
- Flashcards and crossword puzzles for review
- Web-based activities to reinforce concepts such as memory configuration, ports, and key concepts in the chapter
- Self-study quizzes

A complimentary access code for the book’s Companion Website is available with a new copy of this book. Subscriptions may also be purchased online.

Instructor Support The following supplements are available to qualified instructors from the Pearson Education Instructor Resource Center (www.pearsonhighered.com/irc). Please visit the Instructor Resource Center, contact your Pearson Education/Addison-Wesley representative, or send an email to computing@pearson.com to register for access:

- Instructor’s Manual
- PowerPoint® Presentation Slides
- Test Bank
- Computerized Test Bank
- Blackboard Cartridge

A Note to Instructors

Whenever people ask me what I do, my first response is “I fix computers.” In my heart, I will always be a technician. Everything else is just a facet of that skill set, whether it is managing a computer and network support department, building a new lab and networking it, or teaching Voice over IP and quality of service. All of these boil down to knowing technical things. Sharing what I know is as natural as walking to me, but sitting still to write what I know is unnatural, so composing this text has been one of my greatest challenges. I managed to do it only because I needed a better textbook.

I taught computer repair classes long before I became a full-time faculty member. I was very frustrated with not having an appropriate book. Early on, I taught without a textbook and my students nicknamed me “the Handout Queen.” I hope you are one of my colleagues who agrees that this book offers better support to both students and instructors. If there is any material you would like added or changed, please send a note to the author at cschmidt@fscj.edu.

A Note to Students

All the way through the book, I had to refrain from telling my stories, stay on track, and avoid using my mnemonics. Writing a textbook is really different from teaching class. My personality lies buried in this book. Only in a few places can you see or feel my teaching style, but I hope it comes through in subtle ways. My students are like my children except that I do not have to feed them and send them to college, so I am happy to claim any of you. I wish that I could be in each classroom as you start your computer career. How exciting!

Another thing that I tell my students is that I am not an expert and to watch out for those who say or think they are. Computer repair is an ever-changing field. I have been at it a long time,
but there are always products and standards being developed that I do not know very much about. Humility is a wonderful trait to keep in computer repair because if you are not humble, the industry will prove you wrong sooner or later.

To my future technicians, I offer one important piece of advice:

*Consistent, high-quality service boils down to two equally important things: caring and competence.*

—Chip R. Bell and Ron Zemke

I can help you with the competence, but you are going to have to work on the caring part. Do not ever forget that there are people behind those machines that you love to repair. Taking care of people is as important as taking care of their computers.

**Acknowledgments**

Many people have helped me along my career and life paths. Thanks to the following people who have influenced my teaching: Ernie Friend, Amanda Bounds, Kevin Hampton, and Barbara Cansler (who happens to be my mother). Each of you has provided inspiration to me in my endeavors. Thanks also to Richard Jones of Scott/Jones Publishing for helping this book develop in its first three editions.

Thanks to the folks at my publisher, Addison-Wesley. This book is something I am very proud of because of their efforts and professionalism working on the book and supporting me. Michael Hirsch is a wonderful manager. I also want to extend a special thank you to the other Addison-Wesley book team members, including Kelly Keeler, Heather McNally, Stephanie Sellinger, and Kathy Ringrose.

No acknowledgments can be complete without mentioning the support and love of my family members—Karl, my husband, is the love of my life and completes me; Karaline and Raina, my daughters, are a constant joy to me and helped with some of the book sections; Sara and Josh Schmidt, Gavin, and Riley Redrick, whom I miss greatly; my mother, Barbara Cansler, and brother, Jeff Cansler, as well as my niece and nephew, Kristen and Chance, bring a smile to my face when I talk to them during pre-press days.

Thanks to all my colleagues, adjuncts, and students at Florida State College at Jacksonville (formerly Florida Community College at Jacksonville), who have offered numerous valuable suggestions for improvement and have been testing some of the new material. Finally, the faculty members who reviewed individual chapters over the last four editions have my undying gratitude for their input.

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