Career Technical Education (CTE)

Engineering and Technology Education
Adoption Guide

For additional information (e.g. pricing, copyright, ISBN) and Idaho completed evaluations, please contact the curricular materials coordinator.

Materials in this guide are contracted from November 2020-December 31, 2026

GRADES 9-12

Cengage

CompTIA A+ Guide to IT Technical Support

- **Recommendation: Basic**
    - Strengths: Text is excellent for an introductory document. Designed to introduce the student to computer hardware and basic operating system troubleshooting. Textbook builds from a basic concept of the computer to a presentation of existing technology involved in the development of network infrastructure. It touches on multiple subjects that students may wish to pursue beyond this textbook.
    - Weaknesses: Overall the textbook does not go in-depth over technical materials related to the computer field. Text relies on third party websites to provide troubleshooting and teardown instruction on devices not covered within the text. Basic to intermediate level of understanding, students who are working above grade level will find this text restrictive in the overall information provided.
    - Key Features: Andrews/Dark/West's A+ GUIDE TO IT TECHNICAL SUPPORT, prepares students with the technical skills to support desktop and laptop computers as well as mobile devices. Readers master the knowledge and skills today's IT professionals need while preparing to take the CompTIA A+ exams. The authors introduce key fundamentals as well as the latest technology, techniques and industry standards in IT technical support, using CompTIA A+ exam objectives as a framework. This edition covers all CompTIA A+ 220-1001 and A+220-1002 exam objectives. Students examine the most current hardware, security, Active Directory, virtualization, cloud computing, operational procedures, troubleshooting and mobile devices. MindTap online resources, online labs and CourseNotes are also available.

Network+ Guide to Networks

- **Recommendation: Comprehensive**
  - Strengths: Document is written to a higher level of understanding and technical acumen supportive of grades 11 - 12. Excellent in developing real-world skills, and knowledge. Graphics represent existing technology taking students through multiple steps as it guides them though extremely technical construction. Presents students with real-world network architecture and infrastructure that they will encounter on the job.
  - Weaknesses: Text begins with the assumption that a student's technical background is already established and they are prepared for the high level of technical detail this book entitles. Puts possible financial strain on school district to present resources and tools in support of the overall projects that students are expected to perform from the book. Though the book supports the CompTIA Net + certification the book does not present test questions, or scenarios related to the certification exam.
  - Key Features: Completely updated, West/Dean/Andrews' NETWORK+ GUIDE TO NETWORKS, equips your students with the skills and knowledge to begin an exciting career installing, configuring and troubleshooting computer networks. It thoroughly prepares students for success on CompTIA's Network+ N10-007 certification exam with fully mapped coverage of all objectives, including protocols, topologies, hardware, network design, security and troubleshooting. An all-new structure makes essential information easily accessible and helps students visualize high-level concepts. New virtualization-based projects give students experience working with a wider variety of hardware, software, operating systems and device interactions, while "On the Job" stories, Applying Concepts activities, and Hands-On and Capstone Projects help readers further explore chapter concepts. MindTap Networking is also available.
    UP-TO-THE-MINUTE DISCUSSIONS AND PROJECTS ENSURE CURRENCY. Known for its comprehensive, current coverage, this text emphasizes emerging developments in computer technology and the latest operating systems, including Windows 10®, Windows Server® 2016 and newer Linux applications.
    To aid you in fully understanding networking concepts, this text includes many features designed to enhance your learning experience.
    •On the Job stories—Each chapter begins with a real-world story giving context for the technology and concepts presented, providing insight into a variety of modern computing environments from the various perspectives of many different professionals in the IT industry.
    • Chapter Objectives—Each chapter lists the concepts to be mastered within that chapter. This list serves as a quick reference to the chapter's contents and a useful study aid.

• Applying Concepts activities—Embedded within each chapter are activities with step-by-step instructions to help you apply concepts as you learn them.

• Colorful illustrations, photos, tables, and bullet lists—Numerous full-color illustrations and photos of network media, protocol behavior, hardware, topology, software screens, peripherals, and components help you visualize common network elements, theories, and concepts. In addition, the many tables and bulleted lists provide details and comparisons of both practical and theoretical information.

• OSI layer icons—These icons provide visual reinforcement of the link between concepts and the relevant layers of the OSI model. A thorough understanding of where concepts sit on the OSI model makes managing and troubleshooting networks more effective and efficient.

• CompTIA Network+ Exam Tips and Notes—Each chapter's content is supplement- ed with Note features that provide additional insight and understanding, while CompTIA Network+ Exam Tips guide you in your preparations for taking the CompTIA Network+ certification exam • Legacy Networking features—Older technology covered by the CompTIA Net- work+ exam provides historical reference to current technology.

• Key Terms and Glossary—Highlighted key terms emphasize the core concepts of networking and are defined in the convenient Glossary.

• Chapter Summaries—Each chapter's text is followed by a summary of the concepts introduced in that chapter. These summaries help you revisit the ideas covered in each chapter.

• Review Questions—The end-of-chapter assessment begins with a set of review questions that reinforce the ideas introduced in each chapter. Many questions are situational. Rather than simply asking you to repeat what you learned, these questions help you evaluate and apply the material you learned. Answering these questions will help ensure that you have mastered the important concepts and provide valuable practice for taking CompTIA's Network+ exam.

 • Hands-On Projects—Each chapter provides several Hands-On Projects aimed at providing you with practical software and hardware implementation experience as well as practice in applying critical thinking skills to the concepts learned.

 • Capstone Projects—Each chapter concludes with two or three in-depth projects where you implement the skills and knowledge gained in the chapter through real design and implementation scenarios in a variety of computing environments. With the help of sophisticated virtualization and emulation products you can get free online, the Capstone Projects introduce you to a multitude of real- world software, hardware, and other solutions that increase your familiarity with these products in preparation for addressing workforce challenges.

• Content maps completely to CompTIA's Network+ N10-007 exam for productive exam preparation.

• New arrangement of content consolidates similar concepts for efficient coverage, allowing for deeper investigation of particularly rich concepts and skills that are emphasized in the latest CompTIA Network+ N10-007 exam, including a stronger emphasis on security, troubleshooting, and virtualization, with added coverage of VLANs, IoT, and fiber-optic technology.

• Interactive learning features throughout each chapter make essential information easily accessible with insightful diagrams, useful tables for quick reference, and bulleted lists that present condensed information in easy-to-digest chunks.

• Applying Concepts activities embedded in each chapter help solidify concepts as you read through the chapter and provide immediate practice of relevant skills.

• New and updated skills-based projects encourage hands-on exploration of chapter concepts. These projects include thought-provoking questions that encourage critical thinking and in-depth evaluation of the material. The software tools used in the projects are included in Windows or freely available online, and hardware requirements are kept to a minimum.

MindTap is the digital learning solution that powers students from memorization to mastery. MindTap helps students master the skills they need in today's workforce. Research shows employers need critical thinkers, troubleshooters and creative problem-solvers to stay relevant in our fast-paced, technology-driven world. MindTap helps students achieve this with assignments and activities that provide hands-on practice, real-life relevance and certification test prep.

Fundamentals of Python: First Programs

- **Recommendation: Component**
  - Strengths: Case studies and exercise at the end of the chapters were good. The application of math and using formulas was well done. Academic, content specific wording is used throughout the material. Vocabulary words are bolded in the chapters as they are used and there is a glossary that reinforces the vocabulary acquisition opportunities. The online version has links that define the words.
  - Weaknesses: Lots of text would be difficult for high school students to read and comprehend. The online version is formatted better and more suitable to engaging a student. Teacher rubrics are not evident.
  - Key Features: Present the required fundamentals of computer science while preparing students for further study with the unique, appealing approach in Lambert's FUNDAMENTALS OF PYTHON: FIRST PROGRAMS. Students start with simple algorithmic code before they scale into functions, objects, and classes as problems become more

complex and require new abstraction mechanisms. Rather than confining students to numeric or text-based applications like other introductory texts, this book builds motivation by presenting graphics, image manipulation, GUIs, and simple networked client/server applications. The author uses Python's standard Turtle graphics module to introduce graphics and provide open source frameworks for easy image processing and GUI application development. Readable, thorough coverage and contemporary content engage your students as they work with applications similar to those they use every day. MINDTAP® DIGITAL LEARNING SOLUTION POWER STUDENTS FROM MEMORIZATION TO MASTERY WITH HANDS-ON CODING LABS. With MindTap® students have the opportunity to practice hands-on coding with real-time feedback.

AUTHOR'S READER-FRIENDLY PRESENTATION USES A JUST-IN-TIME APPROACH. The author does not introduce any new concept before students need it to solve a problem.

BOOK PROVIDES EARLY EMPHASIS ON PROBLEM SOLVING AND ALGORITHM DEVELOPMENT. The author begins with simple algorithms to build success and student confidence before progressing to more complex challenges.

ALL PROGRAM CODE EXAMPLES ARE COLOR-CODED TO CORRESPOND WITH THE SCHEME OF PYTHON'S IDLE SYSTEM. This consistent color-coding helps students identify important features of Python, such as reserved words, strings, program comments, and the names of functions, classes, and methods.

UNIQUE EMPHASIS HIGHLIGHTS GRAPHICS AND GUI CONTENT WITH ACTUAL DEPTH OF COVERAGE. While most CS1 textbooks focus on terminal I/O-based applications with an optional chapter on graphics or sections on GUIs that offer little intellectual depth, this book changes that approach. After introducing students to all of the essentials of control structures, data types, and functions with terminal applications in Chapters 2-6, the book introduces object-based programming with Turtle graphics and image processing in Chapter 7and GUI programming in Chapter 9.

NEW APPROACH OFFERS MORE EMPHASIS ON GUIS. This second edition retains the author's signature early focus on terminal-based applications, but takes the later emphasis on GUIs a step further to better prepare students for success.

Responsive Web Design with HTML 5 & CSS

- **Recommendation: Comprehensive**
  - Strengths: This textbook starts with a quick overview of web design and then goes step-by-step throughout the entire book to create and write a webpage using HTML with illustrations of tags, etc. This book has the foundational material and then grows increasingly more complex and deeper into the subject matter. Each chapter presents a practical problem to be solved, within a project planning framework. The project orientation is strengthened by the use of the Roadmap, which provides a visual guide

for the project. Step-by-step instructions with supporting screens guide students through the steps. Instructional steps are supported by the Q&A, Other Ways, Experimental Steps, and BTW features. 21st Century skills in collaboration, communication, and critical thinking are incorporated in the End-of-Chapter Student Activities; Apply Your Knowledge; Extend Your Knowledge; Analyze, Correct, Improve; In the Lab; and Consider This Your Turn assignments at end of each chapter provide for individual, team, and whole class activities in reading, writing, research, presentations, hands-on real-life skill scenarios, etc. which give students opportunities to practice their new skills.

- o Key Features: Combining best practices with the most up-to-date tools available, students learn how to design websites for mobile devices, tablets, laptops, desktops and very large monitors -- from a single-column layout to a multiple-column layout. Packed with tips from the pros, the text illustrates how to use HTML 5 elements and a variety of CSS properties, including more advanced tools such as grid layout, shadows, gradients, transforms and animations. Students also learn how to embed a map, integrate custom fonts within a website, create a working hamburger menu and more.

  Students gain a thorough understanding of the HTML and CSS basics before diving into responsive web design, which is the focus of the remaining chapters. Responsive web design is today's web development standard. Instructors who are not teaching responsive web design in their web design class are teaching old technology.

  Comprehensive, up-to-the-minute coverage equips students with the tools and knowledge to design optimum layouts for mobile, tablet, laptop/desktop devices and large screen monitors. Students are excited to learn how to code a webpage that can make a phone call from a mobile device. Students also learn how to create interactivity on a webpage using CSS, JavaScript and jQuery. Students are able to easily integrate and use custom fonts within a website. Learners get hands-on experience with several advanced CSS properties, such as the grid layout, shadows, gradients, transforms and animations.

  Instructions lead students step by step through publishing completed websites and attracting customers. Easy-to-follow directions and professional insights help you teach your students to take a website through publication and promotion. Text material emphasizes how to design websites that are ideal for mobile as well as desktop devices. Demonstrating how to make the best use of the latest HTML 5 element, the text clearly guides students through the details of building a complete and effective website with today's most up-to-date tools.

  Practical tips and advice show learners how to use new CSS styles to attract customers, giving them the skills, they need to fully utilize the potential of CSS to create professional web designs that drive traffic and retain customers.

Insider tips explain how to effectively use social media within a website, providing students with the keys to integrating social media to promote a website.

Your students gain the skills needed to fully utilize the potential of CSS to create a professional web design that attracts and retains customers. Students learn the keys to integrating social media to promote a website.

With the integration of custom Google fonts, students are not limited to boring browser fonts but have easy access to an expansive selection that will inspire their creativity and using Google Maps, the text shows students multiple ways to embed a map or map link within a webpage. Students learn how to use CSS Grid Layout to create single-column designs for mobile layouts and multiple-column layouts for progressively larger screens and the text uses the CSS opacity property and the rgba() function to add transparency to website elements, giving students a variety of options for integrating transparency within a website. Creating a working shortcut, the text uses a hamburger menu exclusively for a mobile viewport, while larger viewports display a navigation menu and hide the hamburger menu. Learning how to integrate transforms and animations, student can use interactivity to bring their webpage designs to life. Students hands-on experience using the popular web framework Bootstrap to create their first webpage.

Web Design: Introductory

- **Recommendation: Basic**
  - Strengths: With medium brushes, this text introduces students to web design principles and paints industry standard web site production at about the 15,000-foot level for students to understand. Engaging graphics, text, and activities will have students producing their own websites throughout the book.
  - Key Features: Teach your students how to balance target audience expectations, sound design principles, and technical considerations as they create successful, device and platform-independent websites with Campbell's effective WEB DESIGN: INTRODUCTORY. Written specifically for your introductory course, this edition provides a proven selection of engaging hands-on activities at the end of each chapter. These leading exercises test comprehension and help students build effective web research skills, develop design awareness, and strengthen their critical thinking about current issues in today's technology. Written in a clear and engaging style, this text helps your students establish a strong foundation in contemporary web design skills while gaining a strong understanding of today's most relevant web topics, including SEO, HTML, and responsive web design. Now available with MindTap, the digital learning solution that powers students from memorization to mastery. Give your students hands-on skill practice with auto-graded lab assignments in a live HTML integrated development environment directly within MindTap.

NEW MINDTAP® WITH LIVE INTEGRATED DEVELOPMENT ENVIROMENT is the digital learning solution that powers students from memorization to mastery. It gives you complete control of your course. COVERAGE EMPHASIZES RESPONSIVE WEB DESIGN CONCEPTS AND TECHNIQUES. USEFUL APPENDIX FOCUSES ON SEARCH ENGINE OPTIMIZATION (SEO). HTML QUICK REFERENCE APPENDIX COVERS THE LATEST RELEASE OF HTML 5. You, the instructor, have the option of including or omitting this coverage as time permits in your course. TOOLKIT FEATURE IN THE MARGIN DIRECTS STUDENTS TO RELEVANT, EXPANDED TECHNICAL CONTENT. Helpful information throughout the book's Appendices build on in-text information and encourage further exploration and study. Q&A FEATURES IN THE TEXT ENCOURAGE STUDENTS TO TAKE THEIR LEARNING A STEP FURTHER. Students perform searches of their own to find the latest relevant information on web design techniques. END-OF-CHAPTER TRENDS EXERCISES CHALLENGE STUDENTS TO APPLY NEW TECHNOLOGY AND WEB TRENDS. NUMEROUS REAL-WORLD EXAMPLES AND UP-TO-DATE DESIGN TOOLS CLEARLY ILLUSTRATE BASIC CONCEPTS.

CompuScholar

Java Programming

- **Recommendation: Basic**
  - Strengths: Starts from the very basics of programming, builds up to a good level of understanding programming in Java. Covers many concepts that will be applicable to programming in any language.
  - Weaknesses: Limited project selection and ability for teachers to monitor and see student progress. Does not go much beyond beginner programming level in extending student learning. Limited coverage on the importance and types of group work strategies in use for programming.
  - Key Features: This course teaches introductory coding using the Java language. It covers data types, flow control, functions, arrays, debugging, Object Oriented Programming (OOP), Java Swing and additional topics. All CompuScholar courses are delivered through a turn-key online Learning Management System; there are no physical components. Lessons are delivered to students through a mixture of instructional videos, full-color lesson text and hands-on projects. The online system includes a syllabus and pacing guide, teacher's notes for every lesson, automatically graded quizzes and tests, an electronic grade-book, comprehensive reporting tools, solutions and answer keys.

Windows Programming with C#

- **Recommendation: Basic**
  - Strengths: This is a strong approach to cover the introduction to programming in the C# language. It is concise and meets the basic industry standards for programming.
  - Weaknesses: It does not meet the obscure and explicit standards that normally don't exist in a programming class.
  - Key Features: This course teaches introductory coding using the Microsoft C# language. It covers data types, flow control, functions, arrays, debugging, Object Oriented Programming (OOP), graphical program design and additional topics.
  All CompuScholar courses are delivered through a turn-key online Learning Management System; there are no physical components. Lessons are delivered to students through a mixture of instructional videos, full-color lesson text and hands-on projects. The online system includes a syllabus and pacing guide, teacher's notes for every lesson, automatically graded quizzes and tests, an electronic grade-book, comprehensive reporting tools, solutions and answer keys.

Web Design

- **Recommendation: Basic**
  - Strengths: The course is delivered through a web-based learning management system; there are no physical components. Free teacher professional development and teacher-success program. Activities, quizzes, tests are automatically graded in online program. Gradebook is compatible with Canvas, Schoology or Blackboard. Students are provided with opportunities in every lesson/chapter to use their new skills in hands-on practices.
  - Weaknesses: The course is delivered through a web-based learning management system; there are no physical components. Students are not using industry text editors or web design applications. Students use CompuScholar's own program Komodo Edit to create the "pseudo" web sites.
  - Key Features: This course teaches students how to create web pages using HTML5 and CSS. It covers standard HTML elements, common CSS styles, tables, dynamic menus, embedded audio and video, design guidance, simple JavaScript and jQuery interactivity and more. All CompuScholar courses are delivered through a turn-key online Learning Management System; there are no physical components. Lessons are delivered to students through a mixture of instructional videos, full-color lesson text and hands-on projects. The online system includes a syllabus and pacing guide, teacher's notes for every lesson, automatically graded quizzes and tests, an electronic grade-book, comprehensive reporting tools, solutions and answer keys.

Savvas

Learning Graphic Design and Illustration

- **Recommendation: Comprehensive**
  - Strengths: The text is a great opening to the world of Photoshop and Illustrator for students with novice and intermediate levels of acquaintance with this industry standard software. The modeling of the examples and then the end of chapter activities offer opportunities for students to first model and then create and synthesize projects using the software.
  - Weaknesses: This curriculum will not prepare students for the associated Adobe exams in CTE. It is more suitable for an introduction
  - Key Features: Learning Graphic Design & Illustration helps students explore the different career paths available to them while learning key graphic design and illustration concepts, skills, and applications. Students will come away with a deeper understanding of the industry with a focus on fundamental elements and principles of visual art and design. Each chapter is presented through lessons that introduce a number of application features. Students will learn and practice these features as they complete real-world projects such as preparing advertising and marketing materials, or readying files for various types of output. Includes Adobe Certified Associate certification preparation for Adobe Illustrator & Adobe Photoshop.