

Back to the Basics

The first High Tech Center was established at Monterey Peninsula College in the early 1980s. The primary focus at the time was in finding ways to allow students with disabilities to access campus resources such as word-processing and computer-assisted instruction. Technologically, these were much simpler times. The Internet had not yet become a factor in the day-to-day operation of community colleges. MS-DOS and the Apple operating system prevailed. IBM, Compaq and Apple dominated the microcomputer marketplace.

In those early days, the number of assistive computer technologies was very limited. There was essentially one screen reader, one large print display system and one keyboard control program. Software-based assistive computer technology was limited almost entirely to MS-DOS computers. Access to word-processing for students with disabilities was the primary objective. Computer-assisted instruction was largely the domain of the Apple IIe with the vast majority of basic skills software being written for that platform.

During the late 1980s the California State Department of Rehabilitation became interested in the High Tech Center concept as a method for improving access and the academic performance of Department of Rehabilitation clients in the California community colleges. Through a series of establishment grants over the next three years, 85 California community colleges were provided with funding for staffing and equipment in order to develop High-Tech Centers on their campuses. During this time, the High-Tech Center Training Unit was established as a line item in the governors budget intended to provide ongoing training and support for High-Tech Centers in the California community colleges.

Budget change proposals (BCP's) were introduced by the California Community Colleges Chancellor's Office to provide permanent funding for the operation of California community college High Tech Center programs. With the stabilization of funding, community colleges were able to hire both full and part-time staff to operate the programs as well as purchase new and emerging technologies. A significant fraction of these original hires were faculty positions. Generally, high-tech center specialists came from backgrounds in learning disabilities, special-education, counseling and other related fields. While some California community colleges did hire classified staff to fill these positions, around 60% of community colleges hired full-time faculty positions. The remaining 40% hired a combination of faculty and classified staff who worked no less than 50% FTE (Full Time Equivalent) positions.

By the late 1990s, most California community colleges, whether they had received initial grant funding or not had established High Tech Center programs of one sort or another. Staffing of these remaining 25 or so High-Tech Center programs was much more variable. In some instances, staffing fell below 50% FTE and skill level requirements were adjusted to accommodate available funding.

Use of computer technology continued to expand in virtually every area of community college operations. Libraries, online registration systems and the Internet began to dramatically change the ways in which colleges interacted with students. In an agreement between the California Community College Chancellor's Office and the Office for Civil Rights concerning equal access to electronic campus resources, ongoing funding was secured to provide each California community college with the resources and staff to provide instructional materials in alternate formats and the development of accessible web-based resources for students with disabilities. While colleges were not specifically required to hire alternate media or Web accessibility specialists, they were obliged to ensure that instructional materials were available in appropriate alternate formats and that web-based resources were available to students with disabilities.

Over time, each of these funding resources (High Tech Center, Alternate Media and Web Accessibility) have been folded into the Disabled Student Services funding base and distributed to California community colleges as a part of the overall categorical allocation rather than a specific line item for each of these activities.

The budget crisis of 2002-2003 and its perceived impact on funding for students with disabilities resulted in some community colleges significantly reducing both staffing and funding for High Tech Center programs. With more than twenty five percent of community college Disabled Student Services Program Directors newly hired within the last few years, it is appropriate to review the basic philosophy, structure, goals, objectives, hardware and software that should be available at high Tech Center programs throughout the California community colleges.

Assistive computer technology

On California community college campuses High Tech Center programs consist of three components: assistive computer technology, alternate media and Web accessibility. Assistive computer technology is the backbone of these programs.

Assistive computer technologies provide students with disabilities an opportunity to compete on equal footing in the academic environment when utilizing specialized computer applications. In practical terms, this means the ability to use a word processor, e-mail system, Web browser, distance education resources, web-based college registration system and other computerized tools and resources used by all students.

Alternate Media is largely concerned with producing instructional materials in formats that preserve the look and feel of the original while allowing students to access these resources using various types of assistive computer technologies. Electronic text, audio and Braille are common examples of alternate media formats.

Web accessibility is concerned with the design and creation of web-based resources which can be used seamlessly by students with disabilities using various assistive computer technologies. Students who are blind, low vision, have the learning disabilities or who depend upon alternatives to the keyboard benefit from accessible Web site design.

What is a High Tech Center

Over the years, the definition and function of the High Tech Center has evolved and changed. The purpose of the High Tech Center has, however, remained constant. High-Tech Centers are intended to provide students with disabilities training and support in the use of assistive technologies that allow them to compete as equals with their non-disabled peers on a community college campus. Central to the purpose of the High Tech Center is training and support for students with disabilities.

High Tech Centers were never intended to be separate but equal computing facilities for students with disabilities. Effective instructional methodology recommends that the initial phases of training and support take place in a dedicated facility free of distraction. This is particularly important for students who are blind or have learning disabilities.

Once students have reached acceptable levels of competency with their particular assistive technologies, it is desirable and even appropriate that the students should participate in mainstream computing facilities where similar assistive computer technologies are available.

The size of the High-Tech Center training facility is generally a function of the total number of students with disabilities enrolled at the college. In general, 10% of the overall student population are students with disabilities. It is recommended that one in every 10 workstations in all mainstream computer facilities be fully accessible. This includes both adjustable workstations and assistive computer technologies.

A typical High Tech Center might average six hundred square feet and contain eight to ten fully accessible computers and workstations. The High Tech Center might or might not be integrated with the campus network but should certainly include access to the Internet. When setting up your High Tech Center for the first time, be certain that the power supply is adequate. Ideally, the room should have an isolated power supply with a pair of power outlets for each workstation (e.g., eight workstations would require sixteen plugs).

Student workstations should be configured as a small network so that they can share a common printer. A separate workstation for a trainer or instructor along with a video projection system and wall screen would support training students on new assistive computer technologies.

In terms of computer technology, Windows-based computers continue to remain the most highly accessible of all computer platforms. While there have been accessibility improvements to the Apple OS X platform, access to Macintosh computers for students who are blind remains problematic. It is strongly recommended that the High Tech Center use the same Windows platform as is used throughout the campus.

Assistive computer technologies fall into several basic categories:

- screen readers for students who are blind
- large print display systems for students with low vision

- speech recognition and keyboard control programs for students with physical disabilities
- scan/read assistive writing systems for students with learning disabilities.

High Tech Center curriculum should include basic computer skills along with specialized curriculum for screen reading, large print display, speech recognition, keyboard control programs and audio/assistive writing systems. A wide variety of curricular materials have been contributed by California community college High Tech Center staff. You may visit these resources at:

<http://www.htctu.net/trainings/manuals/contributions/maincontribute.htm>

Staffing

We strongly recommend that California community college High Tech Center's have, at a minimum, high-level classified staffing. More than 15 years of operation have clearly demonstrated that High-Tech Centers function most effectively when staffed by full-time faculty position with the support of one or more full or part-time classified positions. If that option is unavailable, except for the smallest campuses, it's best to divide the responsibilities of the High Tech Center (assistive computer technology, alternate media and Web accessibility) between multiple individuals. Frequently, responsibility for Web accessibility is shared with staff from other departments on campus. Remember that while community college's have a responsibility to provide alternate media and Web accessibility, they are under no particular obligation to provide those services through categorically funded programs. Sample job descriptions outlining minimum qualifications for assistive computer technology and alternate media positions are posted at the HTCTU website. Assistive computer technology job descriptions can be found at <http://www.htctu.net/divisions/act/main.htm>. Alternate media job descriptions can be found at <http://www.htctu.net/divisions/altmedia/main.htm>.

Developing effective working relationships with the campus Management Information Systems (MIS) team is essential. If you elect to integrate assistive technologies into the campus network, you will need the expertise and support of campus MIS staff. The HTCTU offers trainings intended specifically for MIS staff (ACT/ICT for Windows).

Training

Staff training is an essential component for effective High Tech Center operation. The HTCTU provides a variety of trainings which address basic assistive computer technology, alternate media and Web accessibility skills as well as a wide variety of advanced trainings. Trainings provided through the HTCTU are available at no charge. For employees of campus Disabled Student Services Programs, trainings at the HTCTU also include reimbursement for travel and hotel accommodation.

It is highly recommended that initial and ongoing training become incorporated into the ongoing professional development of all High Tech Center specialists. Training and registration information is available at: <http://www.htctu.net/>. Additionally, training

guides for the majority of HTCTU trainings are available at:
<http://www.htctu.net/trainings/manuals/tutmain.htm>

What to purchase

There are dozens of assistive technologies on the market. Some technologies are integrated into the computer operating system, whereas other assistive technologies are available as shareware, open-source or commercial products. Historically, it has been the policy of the HTCTU to provide support and training for assistive computer technologies which evaluation and review have shown to be the best of currently available technologies. California community colleges are free to purchase and use whatever assistive computer technologies they wish to employ. However, training and support from the HTCTU focuses on a subset of available technologies which history and experience have shown to be most reliable.

Before purchasing any software, it is critically important that you confirm the compatibility of assistive technologies with the specific computer system you intend to employ. Industry standard Windows-based computer systems like Dell, IBM, or Gateway are generally acceptable. Be certain that the audio board used by the computer is a Sound Blaster or Sound Blaster compatible equivalent.. This document contains a detailed list of hardware and software requirements that are essential for a fully integrated High Tech Center resource. We strongly recommend that you read and follow the recommended configuration list precisely.

Adjustable Workstations

Workstations should be at least 28 inches deep by 36 inches wide. Ideally, they should include separate adjustable surfaces for the keyboard and display screen. If you intend to mount the computer below the workstation, be certain that the computer is reachable by students in wheelchairs. Your High Tech Center should include at least one "sit/stand" workstation which can be adjustable for use by students who prefer standing while working. Adjustable workstations can be electrically or manually powered. Any number of vendors manufacture adjustable workstations. In general, you should expect to pay between \$300 and \$1800 per workstation. While there are different workstation vendors, you may also consider working with the furniture provider used by your college.

Adjustable Workstation Vendors

- Ergo In Demand
http://www.ergoindemand.com/computer_workstations_overview.htm
- Anthrocart
<http://www.anthro.com/index.aspx>

Ergonomic chairs

Well designed chairs are essential for each workstation. At a minimum, chair should include adjustments for height, armrest angle, back angle and seat angle. In general, you

should expect to pay between \$300 and \$700 per chair. It is also a good idea to include a mix of rolling and non-rolling chairs to accommodate student needs.

Screen readers

Screen reading software allows students who are blind or low-vision to access and use a computer's operating system and applications. Screen readers programs are complex applications easily as challenging as full-featured word processors. It is essential that students wishing to learn the use of screen readers are competent touch typists. While it is possible to acquire basic screen reading skills relatively quickly, skill levels sufficient to navigate e-mail, word processing, Web browsing and web-based instructional resources will probably require at least one semester of structured training. It is strongly recommended that campus High Tech Center specialists attend screen reading training at the HTCTU. Since a screen reading technologies change frequently, we highly recommend repeating the screen reading training at least once every two years.

Large print display systems

Students with low vision, and occasionally students with learning disabilities, require magnification of the computer screen. Software-based large print display systems address this need and often include the capacity to provide spoken output of magnified text as well. The systems magnify both text and graphics. While relatively easy to learn and use, magnification levels exceeding six diameters of magnification may result in some slowdown of reading and evaluating onscreen materials. In general, students should be able to acquire the basics of using a large print display system with only a few hours of instruction. High Tech Center sites should also include a hardware-based CCTV for magnification of books and other hardcopy materials. Training and use of large print display systems is available through the HTCTU by enrolling in the two-day assistive computer technology training.

Keyboard control programs

Students with physical disabilities may need to modify keyboard operation. These modifications include such options as disabling key repeat, sequential entry of multikey commands, modifying keyboard sensitivity and other functions. The vast majority of these options are built into the operating systems of both Windows and Macintosh computers. Training in the use of keyboard control programs is available through the HTCTU by enrolling in the two-day assistive computer technology training.

Speech recognition

For students with physical disabilities and some students with learning disabilities, speech recognition can be a valuable tool. Effective speech recognition requires the student to produce consistent speech. Unfortunately, the kinds of speech variability often encountered with certain types of cerebral palsy, head injury or other disabilities affecting breath control and speech may rule out the use of speech recognition as an assistive technology. Under any circumstance, learning to use speech recognition is a complex task on a par with learning to use a word processor. While basic skills can be acquired rather easily, the ability to navigate the operating system, e-mail, Web browser, web-based instructional environment or word processing requires considerable training and

above all, practice. Training in the use of speech recognition technology is available through a variety of trainings offered by the HTCTU. It is strongly recommended that community college High Tech Center staff proposing to teach students the use of speech recognition attend these trainings. Dragon NaturallySpeaking remains the speech recognition system of choice for High Tech Center programs (Professional is required for networking Dragon NaturallySpeaking).

Read/Scan Tools

Read/scan tools provide access options for students with learning disabilities as well as students who are blind/low-vision. For students with learning disabilities, read/scan programs, such as the Kurzweil 3000, provide a bi-modal environment where scanned content is highlighted as well as spoken to the student. These reading systems allow students to compose documents, repair misspellings unique to students with learning disabilities, consult dictionaries, thesaurus, and access Web-based content. Other scan/read applications, such as the Kurzweil 1000, allow students to scan materials and read content within an environment designed for students who are blind/low-vision and do not benefit from text-highlighting and speech synchronization.

Web Accessibility Tools

The High Tech Center Training Unit has licensed several Web accessibility applications to support the creation of accessible Web-based materials. These software tools can be utilized by California community college students, faculty, staff, and administration at no cost to the colleges to create accessible Web content. The HiSoftware applications provide both Web accessibility evaluation and repair options as well as a captioning tool for Web-based multimedia.

Shopping list

Below is an itemized shopping list of the hardware and software elements that make up a High Tech Center on a California community college campus. While we have listed specific brand names, contact information and pricing, these are suggestions rather than mandates. The number of each of these items you will need to purchase depends upon the size of your college and the number of students with disabilities who will be using a High Tech Center. Quantity purchase prices and site license prices are available from each vendor but will need to be negotiated on a case-by-case basis.

Software Applications

Screen Readers

JAWS

JAWS (Job Access With Speech) is a screen-reader application for the Microsoft Windows operating system for individuals who are blind/low-vision. JAWS provides the capability to interact with various Microsoft applications (e.g., MS Office) as well as

other third-party applications. JAWS is available as a standalone installation, network installation, or for use with a USB-drive. More information is available at: http://www.freedomscientific.com/fs_products/JAWS_HQ.asp . Contact Freedom Scientific for additional information and current pricing regarding site licenses.

Note:

Colleges will need to purchase JAWS Professional in order to work with Windows XP Professional.

Cost:

\$1,095 (does not include SMA)

Optional:

Software Maintenance Agreement: +\$200 (includes two major upgrades)

Freedom Scientific Blind/Low Vision Group

11800 31st Court North

St. Petersburg, FL 33716-1805

Phone (sales): 1-800-444-4443

Window-Eyes

Window-Eyes is a screen-reader application for the Microsoft Windows operating system for individuals who are blind/low-vision. Window-Eyes provides the capability to interact with various Microsoft applications (e.g., MS Office) as well as other third-party applications (e.g., Adobe, etc.). Window-Eyes is available as a standalone installation, network installation, and for portable use with a USB-drive. More information and pricing is available at: <http://www.gwmicro.com/> . Contact GW Micro for additional information and current pricing regarding site licenses.

Cost:

\$795.00

Optional:

Software Maintenance Agreement: +\$299 (includes three major upgrades)

GW Micro

725 Airport North Office Park

Fort Wayne, IN 46825

Phone: (260) 489-3671

Large print display

ZoomText

ZoomText is a screen-enlargement application that is available in two product levels. Level 1 is a screen magnifier for the Microsoft Windows environment. Level 2 offers a

fully integrated magnifier and text-to-speech reader designed specifically for the low-vision computer user. Additional information and site licensing is available at:

<http://www.aisquared.com/>

Cost:

\$595

Ai Squared

P.O. Box 669

Manchester Center, VT 05255

Phone: (802) 362-3612

Speech-recognition

Dragon NaturallySpeaking

Dragon NaturallySpeaking (DNS) is a speaker dependent, continuous speech recognition system for the Microsoft Windows operating system. DNS is suitable for persons with repetitive strain injury or moderate to severe physical disabilities that limit the use of the keyboard. DNS is available at two product levels: DNS Preferred and DNS Professional. DNS Professional allows the user to custom voice commands (macros) to create documents, insert boilerplate text, customize applications, complete forms, and perform other complex tasks with a spoken word or phrase. More information is available at:

<http://www.nuance.com/naturallyspeaking/> .

Cost:

\$199 (DNS Preferred)

\$799 (DNS Professional) - required for networking

Nuance

1 Wayside Road

Burlington, MA 01803

United States

Phone: (781)-565-5000

Scan/Read programs

Kurzweil 3000 for Windows

Professional (Scan/Read) Version: \$1495

Learn Station (Read Only) Version: \$395

Kurzweil 3000 for Macintosh

Professional (Scan/Read) Version: \$1495

Learn Station (Read Only) Version: \$395

The Kurzweil 3000 is a computer-based reading system for sighted users that converts printed material into speech. Users can hear printed words spoken aloud as they read them on the computer screen. In addition to reading documents, users can use dictionary and phonetic spelling tools to enhance their reading. Scanned pages appear on the screen as they appear in the original material. As the Kurzweil 3000 reads, it highlights each word and its context. This program also enables the creation of MP3 sound files of printed materials which can be shared with students for off-site study. The Kurzweil 3000 also possesses the ability to read the Internet. The Kurzweil 3000 is available as a standalone or networked delivery system (or a combination of both solutions). More information about the Kurzweil 3000 systems is available at:

<http://www.kurzweiledu.com/products.asp>

Kurzweil Educational Systems, Inc.
52 Third Avenue
Burlington, MA 01803
Phone: 1-800-894-5374

Kurzweil 1000

The Kurzweil 1000, designed for persons who are blind/low vision, is a computer-based reading system that converts printed material into speech for the Microsoft Windows environment. Users navigate through their documents by using the optional keypad that comes with it or by using the numeric keypad on a full size keyboard. In addition to reading documents, users can use dictionary and spelling tools to enhance their reading. Kurzweil 1000 documents can also be managed from the numeric keypad. This program also enables the creation of MP3 sound files of printed materials which can be shared with students for off-site study. The Kurzweil 1000 was designed for non-sighted users. More information about the Kurzweil 1000 is available at:

http://www.kurzweiledu.com/products_k1000.asp

Cost:
\$995

Kurzweil Educational Systems, Inc.
52 Third Avenue
Burlington, MA 01803
Phone: 1-800-894-5374

Software DAISY Player

Dolphin EaseReader

The Dolphin EaseReader is a software-based DAISY player that operates on the Microsoft Windows operating system. The EaseReader allows students the option of reading the text and listening to the audio portion of a digital talking book independently or simultaneously with the onscreen text. Using the EaseReader, words, phrases and headings can be located quickly and easily and the player incorporates a powerful search function for fast access to specific sections in the content. It is highly recommended to

purchase this player through the Recording for the Blind & Dyslexic (RFB & D) to ensure the player will support RFB & D digital books. More information about the EaseReader is available at:

<http://www.dolphinaudiopublishing.com/products/EaseReader/index.htm>

Cost: \$45 (through RFB & D: <https://custhub.rfd.org/SearchPlaybackDevices.asp>)

Dolphin Audio Publishing
Dolphin Computer Access
60 East Third Avenue, Suite 301
San Mateo, CA 94401

Phone: (866) 797-5921

Braille Translators

Duxbury Braille Translator

The Duxbury Braille Translator converts files from Word, WordPerfect, HTML, and other formats into uncontracted and contracted literary Braille, Nemeth, BAUK, UEBC, or French Braille. Utilizing the Microsoft Windows platform, the Duxbury Braille Translator includes printer-drivers for all commercial braille embossers to simplify the process of creating Braille content. More information is available at:

<http://www.duxburysystems.com/products.asp>

Cost:
\$595

Duxbury Systems, Inc.
270 Littleton Rd., Unit 6
Westford, MA 01886-3523
USA

Phone: (978) 692-3000

Visual Learning Tools

Inspiration

Inspiration is a tool for students to plan, research and complete projects successfully. Students may create graphic organizers and expand topics into writing encouraging learning in multiple modes. More information is available at:

<http://www.inspiration.com/productinfo/inspiration/index.cfm>

Cost:
Approximately \$62.

Inspiration Software, Inc.
9400 SW Beaverton-Hillsdale Hwy
Suite 300
Beaverton, OR 97005-3300

Phone: (800) 877-4292

Web Accessibility Tools

AccVerify/AccRepair

AccVerify/AccRepair is a desktop solution for the evaluation and repair of Web content to assist in the creation of accessible Web content. Available for MS Windows systems, AccVerify/AccRepair can evaluate published ("live") Web content as well as content still under development and provide reports regarding potential accessibility errors. If repairs are necessary, AccVerify/AccRepair can assist Web content creators with a step-by-step procedure of fixing accessibility errors.

Cost:

Free to California community colleges. Contact the High Tech Center Training Unit for information.

Hi-Caption

Hi-Caption is a desktop solution for creating captioned versions of Web-based multimedia presentations. Hi-Caption can simplify the captioning process for Windows Media Player and Real Player media presentations. Hi-Caption also provides support for Flash-based presentations with several components necessary to take presentations authored in Adobe Flash and integrate captions into the final presentation.

Cost:

Free to California community colleges. Contact the High Tech Center Training Unit for information.

Hardware Technologies

CCTV Systems

ERGO

The ERGO is a video magnifier for individuals with low vision. Models consists of three separate parts: a removable monitor, which can be adjusted to different height levels; a reading table, which can also be adjusted to different height levels independently of the monitor; and a compact, solid metal floor stand with four wheels and a brake system on the front wheels. The monitor and reading table can be placed directly on a desktop and

used without the floor stand if space is limited. The ERGO models include black/white or color displays.

<http://www.accessingenuity.com/Product%20Pages/ERGO.htm>

Cost:
\$2795

Access Ingenuity
3635 Montgomery Drive
Santa Rosa, CA 95405
Phone: 877-579-4380

Desktop Computers

The following specifications are suggestions based on testing and use at the High Tech Center Training Unit and identify a minimum system configuration for use with assistive computer technologies.

- PC-based Computer (Dell/Gateway/IBM/etc.)
- 2.8 GHz (or higher CPU)
- 1 GB of RAM (or more)
- 80 GB Hard-disk Drive
- CD-RW/DVD-ROM
- SoundBlaster 16 (or compatible audio card – needs to support 16-bit recording)
- 17" or greater flat-panel display

Speech recognition headsets

- Parrott headsets
- Plantronics (DSP-500 Digitally-Enhanced USB)
<http://www.provantage.com/plantronics-dsp-500~7PLAH008.htm> (\$42.85)

Trackball mouse

There are a variety of different trackball solutions. The "Kensington Ultimate Expert Trackball" and the "Kensington Orbit Optical Trackball" are two options that may be useful in a High Tech Center Lab environment. Additional trackball information can be found at: <http://www.sforh.com/pointing/trackballs.html>

Cost:
\$50 - \$130

Solutions for Humans
365A Tesconi Circle
Santa Rosa, CA 95401
USA

Phone: (800) 953-9262

Printers

Network capable in order to allow students to print from multiple locations in the HTC Lab. (A printer to support 11"x17" paper is recommended)

Cost:
\$800 - \$1500

Flat-bed Scanner

A flat-bed scanner will allow a student to scan individual documents for use with Read/Scan software solutions. Flat-bed scanners may also be purchased with automatic document feeders (optional) for faster scanning options.

Cost:
\$200 - \$500

Hardware Daisy Player

Victor Reader Classic Plus

The Victor Reader Classic Plus is a hardware DAISY player designed to help students navigate digital talking books. The face of the unit has a 12 digit number pad, similar to the number pad on a telephone. Each number has a significant function, including the star and pound keys. The handle on the Victor Reader Classic Plus allows a college or department to secure the player in a public setting. It is highly recommended to purchase this player through the Recording for the Blind & Dyslexic (RFB & D) to ensure the player will support RFB & D digital books. More information is available at: <https://cushub.rfbd.org/SearchPlaybackDevices.asp>

Cost: \$375

Recording for the Blind & Dyslexic
20 Roszel Road
Princeton, NJ 08540
Phone: (800) 221-4792

Additional recommended hardware/software

P.I.A.F. Tactile Image Maker

P.I.A.F. is a controlled heat source for the automatic development of heat sensitive paper, known as capsule paper. It enables high quality tactile graphics, suitable for blind and visually impaired people, to be made quickly and easily.

<http://www.pulsedata.com/Products/Complementary/PIAF.asp>

Cost:
\$1299

Pulse Data HumanWare
175 Mason Circle
Concord, CA 94520
USA

Phone: (800) 722-3393

Index Basic-D Double Sided Braille Embosser

The Basic-D is a double sided braille printer for continuous tractor-feed paper. Blind and sighted users are guided equally by speech feedback, together with the ink and braille-labeled front panel. The speech is available in a number of languages. It prints at 50 characters per second and approximately 150 pages per hour. More information is available at: <http://www.sighted.com/> .

Cost:
\$3195

Sighted Electronics, Inc.
464 Tappan Road
Northvale, NJ 07647

Phone: 800-666-4883

Canon 9080C high-speed scanner

The Canon 9080C is a sheetfed, duplexing scanner capable of working in either color, grayscale or black-and-white. This is the primary tool used in the California community colleges for converting hardcopy textbooks into electronic files. The scanner can process 50 pages per minute double-sided in grayscale or black-and-white mode.

Cost:
\$6,000 - \$6,500

ScanTastic
<http://www.scantastik.com/>

Phone: 800-977-4935