

TECHNOLOGY PLAN OVERVIEW

El Camino College, like all institutions of higher education, faces the immense challenge of incorporating technology in the classroom and in the workplace. Certain facts are evident:

1. The most important use of technology at ECC is its contribution to teaching and learning.
2. All academic, administrative and student support functions of the college are increasingly dependent on very complex computer networking and data systems that interconnect departments across the District, the District with the state and federal governments, and the College with higher education institutions across the country and throughout the world.
3. Technology change is rapid and ongoing, with computing power doubling every 18 months, the price of computer processing power dropping 30% per year, and voice, image, multimedia, and data becoming increasingly interrelated in a digital world.
4. Community colleges serve as a primary source of high-tech training whose graduates help to offset the increasing shortage of skilled employees in the workplace.
5. El Camino College must upgrade its 56 year-old campus to meet the demands of 21st century technology.

The above statements are as true today as they were when this plan was first developed in 1997.

Technology planning is an ongoing, never-ending process. The current plan is a refined update of the following:

1. Long-term Academic Technology Plan (1995 Academic Technology Committee),
2. Information Systems Technology Plan (1995 MIS Advisory Committee), and

3. El Camino College Technology Plan (1997 College Technology Committee).

The 1997 El Camino College Technology Plan addressed seven major areas. It utilized information from campus committees, forums, Chancellor's Office guidelines and recommendations, Information Technology Services (ITS) management and staff, and Comsul Corporation (networking consultants). The major areas addressed were data systems and networking, equipment and software, technology training, staffing, distance education, facilities, and funding.

There have been many accomplishments during the last seven years. A status report of the 1997 El Camino College Technology Plan is available in the Library along with the current Technology Plan in its entirety. What is presented here is a summary of the major elements of the current plan.

Changing demands and new technology have created new needs and priorities. Cost effective use of technology is essential if the College is to continue to provide quality, comprehensive educational opportunities to the community. This updated plan will serve to guide, assist and promote the use of technology throughout the District.

The El Camino College Technology Plan was developed under the leadership of the College Technology Committee with input from its subcommittee, the Academic Technology Committee. The trends and projections forecasts summarized in the Educational Plan were reviewed and considered as input to the Technology Plan. Also, several of the Planning Agendas in the Educational Plan specifically relate to technology. The Technology Plan provides a technological vision for the College along with principles to guide and prioritize the plan, an assessment of issues to be addressed, and recommendations for resolving these issues.

TECHNOLOGY DEFINITION

In this plan, the term technology refers to the use of hardware, software, and processes that support educational and informational technology. It also describes the equipment necessary for the integration of voice, video, data and multimedia production and presentation in teaching, learning, and managing the educational process. Technology includes, but is not limited to computer labs, media classrooms, distance learning facilities, satellite information retrieval, desktop video conferencing, records archiving, local and wide area media distribution and retrieval, Internet use, and communication via email and voice mail. The plan focuses on the use of computers and computer peripherals, local and wide area communication networks, local and long distance digital databases, and on-line information systems.

TECHNOLOGY VISION STATEMENT

ECC will stand at the forefront of community colleges in utilizing technology to provide students with the greatest opportunity for achieving their educational goals; faculty with the resources and support necessary for continued excellence in instruction; administrators and staff with the most efficient and effective work environment for overseeing daily institutional operations; and the community with effective, efficient, and timely responses to their needs for information, training, and instruction.

GENERAL PLANNING PRINCIPLES

In 1997 the College Technology Committee and the Academic Technology Committee reviewed technology principles from other institutions to formulate guiding principles for El Camino College. The committees discussed, reformulated, and edited the principles to form general planning principles, project prioritization principles, and project design principles to meet the needs of El Camino College.

1. The most important use of technology is to teaching and learning.
2. Funding should be available for purchasing academic hardware and software to utilize the latest technology for instructional and instructional support environments.
3. Faculty, students, and staff should have easy, well-supported electronic access to data and information necessary to perform their functions, regardless of their location.
4. The College will use proven technologies in innovative ways to further its mission.
5. Technological applications should provide increased efficiency and effectiveness while maintaining or improving the quality of support functions.
6. Technological applications should be planned, developed, shared and implemented for multiple locations.
7. A balance should be maintained between investing in entry-level technology and advanced technology.
8. Technology products, services, and projects should be measured and supported based upon their ability to benefit strategic objectives.

Technology Project Prioritization Principles

In prioritizing technology projects, preference will be given to:

1. projects with clearly defined benefits for the faculty/student learning and teaching environment;
2. initiatives that facilitate collaboration among programs/departments for the design, implementation, and the use of common applications;
3. initiatives meeting common objectives, yet capitalizing on local autonomy and using local strengths;
4. projects that further faculty, student, and staff technological literacy;
5. projects that generate new revenue;
6. projects that promote security and facilitate compliance with regulatory mandates; and
7. projects that free up resources.

Project Design Principles

1. Data should be collected once, electronically, as close to its point of origin as possible.
2. New applications should be easier to use than the manual or automated systems they replace.
3. The need for clerical or manual intervention should be minimized with the adoption of new applications.



ISSUES

This section of the Technology Plan focuses on current issues to be addressed with technology and issues impacting the implementation of technology.

Data Systems and Networking

Categorical Data Management

Funding levels for categorical programs are directly linked to the data provided in institutional reports. Unfortunately, the results from the College's data reporting system are often unreliable. There is a need to have a trained MIS specialist who understands all aspects of categorical MIS reporting and who can assist Deans and Directors in compiling necessary reports to the Chancellor's Office.

Lack of a Research Department

A Research Department is necessary to guarantee appropriate data collection and interpretation and to provide a consistent presentation of institutional information. In the absence of Research Department staff, other College staff experience difficulty in retrieving data in a usable format beyond what the COGNOS program currently provides. The current standard dataset and report templates do not allow for the range of queries needed. The system needs to be modified to allow end-users easier access to data, and a researcher, preferably trained in COGNOS, needs

to be hired to partner with ITS in the development of effective and efficient methodologies of utilization, storage, and retrieval of institutional information and documentation. A research department guarantees quality control of data utilization as well as consistency of use of institutional information.

Improved Enrollment Management Through Technology

The current processing of enrollment management data involves delays due in part to the use of manual data input. It does not provide the most accurate or up-to-date enrollment management information to College managers. It causes individuals responsible for enrollment management to be reactive rather than proactive. This is a result of multiple processes that need to be reviewed, modified or eliminated. The following list provides examples of some of the issues to be reviewed through the collegial consultation process and replaced by on-line enrollment processes:

1. Faculty removal of students who registered for a class but did not attend the initial class meeting. Currently, the College takes up to three weeks to process no-shows.
2. Some faculty give permission to students to add classes after the semester starts; the students do not complete the registration process within the prescribed add period.
3. Some faculty members do not maintain their rosters.
4. Inaccuracy of under-enrolled courses.
5. No systematic process for determining student demand for courses.
6. Accurate course enrollment numbers cannot be determined until after the last day to add classes.
7. Wait list processing is cumbersome and labor-intensive.

The enrollment process needs to be streamlined to allow students to more easily enroll in, drop, or withdraw from classes via the telephone or web. Administrators need access to enrollment level and course demand information. Simplifying the enrollment process will also reduce the amount of clerical work required of staff and faculty.

Online Support for Web Services

In recent years, the College has significantly increased the amount of information available to students via the web and telephone. With increased online services comes a demand for student online support services not always related to technology. For example, students who access services via telephone or the web may require non-technical assistance from financial aid, admissions and records, or counseling departments.

Networks

The College's data systems are highly flexible and easily accessible to faculty, administrators and staff. These systems rely on a stable, secure, and quick network environment. Maintaining this level of service requires expanding the network hours, protecting the system from internal and external hackers, preventing spam from overloading the system, and eliminating multiple logons and passwords.

The increase in the frequency of virus attacks is another important issue. ITS receives multiple notifications every day regarding new viruses, and regularly updates the administrative servers with patches to protect against them. The procedure for protecting academic servers varies widely by Divisions. Currently, ITS does not possess the ability to protect the District from viruses introduced by users connecting via laptops to the network or dialing into the network. Students and other individuals communicating with employees via email are also a source of virus attacks. These attacks have compromised computers and caused disruption throughout the District.

A less disruptive network problem is the issue of spam messages. Daily spam messages to College users have increased dramatically over the past few years. The College typically receives 6,000 to 8,000 spam messages per day. A portion of these messages contains virus attacks on the email server. The sheer volume of attacks occasionally overloads the email servers. As a short-term solution, ITS has installed GFI Essentials anti-spam package to eliminate spam messages, but it does not satisfy long-term requirements. Anti-spam packages, by their very nature, frequently trap valid email, which can cause problems in an academic environment. The College needs to create an environment where messages sent by students, faculty, and staff to each other are not subject to anti-spam checking. This will allow faculty to receive class assignments and projects from students without editing or restrictions.

As the District's reliance on electronic communication increases, the number and complexity of the College's networks also continues to grow. In order to meet these demands with quality support, ITS will need to have the ability to distribute virus-checking and other software to individual work-stations from a central location; improve coordination with academic divisions when planning new laboratories and upgrading existing facilities; quickly identify, locate and isolate the source of on-campus virus attacks; support staffing ratios that are appropriate to the number of District work-stations and networks; and provide ongoing formal and informal in-service training for faculty, staff, and administrators.

Equipment and Software

Centrex Telephone Services

SBC Communications currently provides Centrex telephone service to the District. The cost of the service continues to escalate each year. Monthly invoices frequently exceed \$30,000. Vantage Corporation, the District's technology

consultants, has estimated that installing an in-house telephone system could reduce these costs over the long-term by 30 - 50%. Effective support for an in-house system would require adding a full-time Telecommunications Technician position. The consultants predict that savings resulting from installing an in-house switch would recover the costs within 36 months.

Any telephone system acquired must be fully section 508 Rehabilitation Act compliant and accessible by individuals who are deaf or speech impaired. Special Resource Center staff must be included in the evaluation process of any telephone system.

Computer Laboratories

There are more than 50 computer laboratories located throughout the campus operated by the various academic divisions. The department responsible for the majority of open access computer laboratories, as well as class-use labs, is the Learning Resources Center (LRC).

Due to the number of student users and disciplines served, ITS is faced with the continuous challenge of providing up-to-date hardware and software. The College has adopted a tri-annual upgrade and replacement cycle for computers used by students. Replacement of obsolete and worn out computers in all student use labs is essential for two reasons: students require lab access to the latest versions of hardware and software to complete course assignments; and these open access facilities are not adequate to meet student demand when all equipment is fully functional. As the equipment ages, students are regularly turned away due to insufficient numbers of operational computer stations.

The recent installation of new computers in the Library Media Technology Center (LMTC), the Learning Center's Basic Skills Study Center, and the Communications Building Computer Assisted Instruction (CAI) Windows Lab has relieved major challenges in providing adequate service to students from all disciplines. The re-

sult has been a significant increase in usage levels, especially within the LMTC. Replacement of computers in the Reading Lab in 2004/05 is expected to reduce interruption of Humanities reading class instruction over the next year. Replacement of older computers in the Technical Arts Building TOP Lab is necessary to enable sufficient student access to current versions of software being taught in various disciplines, especially in vocational programs. Other labs are scheduled for computer replacement on the three-year replacement cycle described above.

Similarly, regular replacement of overly used video equipment in the Library's Learning Center is necessary for students to have greater and more efficient access to materials from the media materials collection.

College administrators understand the need for ongoing and regular upgrades and replacements of computer equipment. However, the College has yet to make possible simultaneous upgrades and replacements of printers and other peripherals, audio-visual equipment, computer software, and media materials. Fortunately, the District has use of dedicated local bond dollars to replace student computers and audio-visual equipment. Increased demand together with the reduction of state funding for technology and library materials has resulted in a rapidly increasing obsolescence of instructional audio-visual materials and software.

Multimedia Technology / ECC Cable Channel

One of the most pressing multimedia technology issues is the request to convert analog media to digital formats. The LRC, in its Media Materials Digitalization Project, is implementing procedures to move toward increased delivery of media materials via computer networking. The project includes development of procedures and policies for acquiring and distributing new media materials in digital format. However, ITS has been unable to accomplish the conversion of existing analog materials to digital due to the

lack of the necessary equipment (computers, scanners, DVD recorders) to create the conversion. Once this conversion is accomplished, the LRC will implement the delivery of the materials to all computer labs operated by the LRC, and eventually, implement wider distribution of these materials via the Internet.

Related multimedia issues include the need to upgrade the small television studio located in the LMTC, infrastructure to distribute video outside of the Library, and the creation of classroom access to video resources from cable, satellite and videoconferencing systems. At this time the College relies on the City of Torrance for distribution and maintenance of its cable channel. As would be expected, the College's cable channel is not always a high priority for the Torrance station as playback equipment has become outdated and technical support is not always available.

Other multimedia and cable channel issues are listed below.

1. The College does not have the technology to take over playback and maintenance of its cable channel.
2. The College does not have the necessary technical staff to support and maintain the cable channel, television studio, and the distribution of multimedia materials throughout campus.
3. The campus network infrastructure cannot facilitate video over IP (Internet Protocol) to take advantage of videoconferencing equipment.
4. While some classrooms have been upgraded to multimedia classrooms, many others still require this upgrade.
5. Processes have not been implemented to maintain and update all technologies in support areas and classrooms.
6. Technology is not available for media services staff to produce instructional materials in digital formats.

7. Adequate funding is not available to maintain and support classroom audio-visual equipment. Overhead and LCD projectors and projector lamp replacements are not readily available.

Staffing

End User Support

The utilization of technology in all areas of campus continues to increase among students and employees. This expansion is focused in areas of specialized systems for individual units such as the on-line catalog and databases in the Library, electronic College applications in Admissions and Records and through the use of SARS (Student Appointment and Reporting System) software in student services. End users are in need of training and support. User support technicians dedicated to specific areas are also needed.

Computer Laboratories

Support provided to students and faculty in laboratories is currently inadequate. Responsibility for computer labs is scattered among divisions and ITS. Academic division laboratory specialists provide user support and first level technician support. ITS technicians provide advanced technical support. The academic deans and ITS are discussing this centralization-decentralization issue and looking at ways to assure timely and efficient support.

When approving and scheduling new laboratories, consideration must be given to the proper staffing requirements. Every laboratory must have a support person to handle the student user needs and unique specifications of that lab. All employees assigned to a laboratory must be able to provide student and faculty user support, which includes technology for individuals with disabilities. This will require hiring additional laboratory support staff.

Learning Resource Center

While most academic divisions operate with one or more computer labs restricted to class use,

the LRC provides an open access media learning center and computer lab services to all ECC students. The LMTC, Top Lab, and the CAI Windows Lab are open to all currently registered El Camino College students. The LRC also operates three computer facilities (MCS 218, CAI Macintosh Lab, Basic Skills Study Center) primarily for classes or combined class-use and open access facilities.

The staffing challenge facing the LRC is in assuring support staff has the necessary skills to aid users in open-use computer labs and learning centers. The LRC staff is responsible for addressing hardware and software needs in the labs and centers and in the Library.

Network Staff Support

Faculty, students, and the public expect the College's web site, email facilities, and distance education programs to be available twenty-four hours per day, seven days per week. Providing network services without scheduled downtime is unrealistic. Downtimes are needed for data backups and hardware maintenance. However, the College can significantly increase the hours of availability by expanding staff support in the network services area.

Student Help Desk

The College has recently increased the amount of technology available for student use, particularly in the area of web services. The increase in web services has caused an increase in student demand for on-line support services. The on-line support needed for students is different from the on-line support needed for faculty, staff, and administrators. Students accessing web services typically require non-technical assistance in financial aid and other student service areas.

Student and Community Advancement (SCA) Computing Needs

Many SCA programs and services, both on and off-campus, have time-sensitive computing needs that are specific to grants or external funding. These needs are not being adequately met due to the current ITS staffing level. This is especially true for the Hawthorne and Inglewood sites, which currently receive minimal technical support. ITS has indicated that both sites require technical staff to be permanently assigned to those locations.

Distance Education

At present, distance education instructors use several course management packages that are licensed through the California Virtual Campus (CVC). The College recently decided to use Blackboard as the only course management system campus-wide. With the likelihood of funding for the CVC ending in 2005, the College will need to seek a new funding stream to continue utilizing the Blackboard site license and to offset the projected loss of CVC-based training for instructional design. The Distance Education Office also needs adequate staffing for effective communication, coordination, and support of faculty and students. The Distance Education Office needs an instructional designer to work with faculty in on-line and hybrid course development.

Media Services

Media Services has maintained staffing levels but is having difficulty staying current when new technology is introduced to the campus. Budget cuts have eliminated most of the funding from the Chancellor's Office dedicated for Library and Media Services. Specialists and technicians working in the area are providing support to maintain audio-visual equipment, as there is not sufficient funding for upgrades.

College faculty, staff, and administrators rely on technology to perform many of their daily job functions. New technologies become available almost annually and are subsequently purchased and implemented. If employees are to perform their jobs effectively and efficiently, timely training after installation is critical. Due to the loss of the Trainer/Instructional Technology Specialist position, technology training of faculty and staff on the latest campus software and hardware has been almost non-existent. The College must continue to assure that training is offered, and that it meets 508 compliance standards for access.

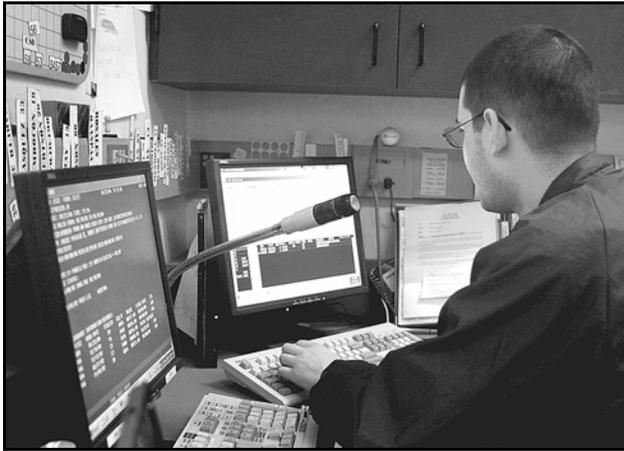
Funding

Department technology purchases and upgrades are not coordinated with ITS to adequately address the ongoing funding needs of the College. The lack of coordination results in urgent requests from departments (e.g., for staffing, technical support, contract renewal, maintenance upgrades, etc.) when equipment that has been ordered by the departments is delivered, and then ITS is requested to do the installations with no advance planning time. Also, the lack of a coordinated plan that details how multiple funding sources will be allocated frequently results in multiple areas being underserved. Increasing coordination will aid in the consideration of short-term needs and long-term commitments before commencing new ventures. In an effort to coordinate technology funding, the College should consider implementing a formal process that requires prior approval from the Technology Committee and the Planning and Budget Committee on new software or hardware purchases. This prior approval process should be integrated in a manner minimizing funding decisions as many programs work on short timelines.

Technology Training

Current sources of technology funding are:

1. Technology and Telecommunications Infrastructure Program, TTIP/Tech II
2. Instructional Equipment/Library Materials
3. General Apportionment
4. Capital funds set-aside for new buildings.
5. Grant and categorical funding (i.e. Title III/V Federal Grants, VTEA, and CalWORK's)
6. Measure-E Bond Funds



SUMMARY

This Technology Plan addresses College-wide issues impacting data systems, equipment and software, staffing, training, and funding. Recommendations include changes that are designed to:

1. Improve enrollment management processes and analysis;
2. Improve online support services and networks;
3. Reduce the number of virus attacks and spam messages;
4. Cancel the current Centrex telephone service in order to purchase and implement an in-house telephone system;
5. Hire additional technology services-related and research staff;
6. Increase the amount of technology training; and

7. Promote coordination with ITS on technology-related purchases prior to making the final decision to fund a project.

PLANNING AGENDAS

The College Technology Committee makes the following recommendations to address the technology, staffing, training, and funding issues listed in the previous section.

Data Systems

Enrollment Management

1. Provide faculty with the ability to add or drop students, including census drops.
2. Allow Admissions and Records to process adds, no-shows, and census drops by processing a roster rather than processing each student individually.
3. Provide a self-service, on-line mechanism allowing students, with faculty permission, to add a class after the first meeting.
4. Inform full- and part-time faculty members of the financial and enrollment management impacts of inaccurate student rosters and the tools available to assist them with grade reporting and maintenance of attendance rosters.
5. Provide academic deans with a daily analysis of course sections to assist in monitoring course fill rates.
6. Implement a wait-list system that automatically enrolls students into a class when a seat becomes available.
7. Develop a process for determining student demand for courses.

Web Services / On-line Support Services

1. Create a student help desk, staffed by experienced Student and Community Advancement employees who will be able to resolve student issues.
2. Utilize all appropriate methods to increase student awareness of College services available via the web.

3. Confirm that all aspects of the web adhere to Universal Access as defined by section 508 compliance standards of the Rehabilitation Act.

Networks

1. Fully implement Lightweight Directory Access Protocol (LDAP) to control multiple logons and to improve security.
2. Purchase and implement LDAP compliant software only.
3. Automatically check virus software status and update, if necessary, when machines connect to the network.
4. Purchase distribution software capable of installing and upgrading applications.
5. Purchase intrusion detection software that will isolate viruses as well as aid in detecting unauthorized attempts to access services.
6. Implement the Chancellor's Office network staffing guidelines.
7. Create and fund ongoing annual in-service training programs for technical staff.
8. Develop an educational program for students and staff to minimize the exposure to external viruses when utilizing the College's email system.
9. Develop campus network infrastructure to facilitate video over IP to take advantage of videoconferencing equipment.

Equipment and Software

1. Cancel the contract with SBC Communications for Centrex telephone service.
2. Purchase and install an in-house telephone system.
3. Establish a replacement/upgrade cycle for computer peripherals, audio-visual equipment, instructional software, and media materials.
4. Implement software and media materials acquisition procedures to ensure LRC and open access computer labs receive

licensed copies at time of purchase for classroom and class-use computer labs.

5. Implement the LRU Media Materials Digitization and Website Development Projects.
6. Finalize planning for LRU/LRC Expansion Project.
7. Implement the Blackboard course management system hosted by ITS procuring software licenses, purchasing appropriate hardware, developing orientation and training programs for faculty, and thorough integration with the District's Web portal.
8. Purchase and implement technology for the College to control playback and maintenance of the ECC cable channel.
9. Continue to develop multimedia classrooms.
10. Implement processes to maintain and update all technologies in classrooms and support areas.
11. Purchase technology for media services staff to produce instructional materials in digital formats.
12. Create a pool of LCD and overhead projectors to replace those that are sent to repair.
13. Maintain an inventory of lamps and other disposable supplies.

Staffing

Director's Retirement

1. Replace the Director upon retirement.

Categorical Funding Reporting Requirements

1. Hire a trained Management Information System (MIS) specialist who understands all aspects of categorical MIS reporting and can assist managers in compiling necessary reports for submission to the Chancellor's Office.

Research Capabilities

1. Hire a full-time researcher, preferably with COGNOS experience, to guarantee appropriate data collection and interpretation to provide a consistent presentation of institutional information.

Student Help Desk

1. Use experienced personnel from the various areas of SCA to staff a student help desk.
2. Create an academic help desk for distance education and on-line students.

Computer Laboratories

1. Centralize and cross-train laboratory technical support staff.
2. Implement the Chancellor's Office laboratory staffing guidelines.
3. Increase the use of student help in laboratories.
4. Hire sufficient computer laboratory technicians to staff all districts labs.
5. Hire a trained access technology specialist to work with all campus laboratory technicians.
6. Provide adequate full- and part-time staff for user and technical support in computer labs and learning centers.

Network Services

1. Fill the ITS network supervisor position.
2. Provide second shift coverage by hiring a full-time network specialist.
3. Improve coverage by hiring two permanent part-time employees to work weekends, holidays, and when the campus is closed.
4. Hire an additional Telecommunications Specialist to support an in-house telephone system.

SCA Computing Needs

1. Hire a full-time User Support Technician dedicated to SCA, with the primary responsibility for network, software, hardware issues in Admissions & Records, Counseling, Business Training Center, Inglewood Center, and Resource Development. Salary and benefits to be paid from SCA grant funds.

Distance Education

1. Hire a multimedia specialist to train faculty on the use of technology in course delivery.
2. Provide additional staffing in the distance education office to ensure proper coordination and support for faculty and students.
3. Provide faculty training for production and delivery of distance education instruction.
4. Create student distance education help desk and technology orientation training for delivery of distance education courses.

Multimedia Technology / ECC Cable Channel

1. Hire a technician to support and maintain the College cable channel, television studio, and the distribution of multimedia materials throughout campus.

Technology Training

1. Insure that the Innovation Center and the faculty/staff technology training room maintain the latest versions of Windows, Microsoft Office, and other software programs utilized on campus.
2. All training sessions must adhere to section 508 compliance standards for access in instruction and laboratories.
3. Provide accessibility standards training for faculty for compliance with 508 standards.

Funding

1. Establish a review and approval process utilizing the Technology Committee for new or expansion projects.
2. Develop a budget development process that reflects recurring software, hardware, and other mandated costs.
3. Require that budget recommendations reflect both the initial and ongoing costs of new projects, including staff salary and benefit increases.
4. Aggressively pursue joint ventures with vendors and the Chancellor's Office as a means of offsetting technology costs.
5. Use categorical accounts to fund non-recurring hardware and software costs.
6. Establish adequate funding resources for maintaining and supporting classroom audio-visual equipment.

