

CHAPTER 7. TECHNOLOGY

INTRODUCTION AND COMMITTEE CHARGE

Introduction

New technologies make possible imaginative approaches to teaching traditional subjects and motivate faculty and students to try new ways of information gathering and learning. The flexibility these interactive tools provide can enhance the learning of Alabama State University's ethnically diverse student body. However, technology cannot be an end in itself. The use of technologies is an integral part of the entire university climate, aiding the best instructional practices, curriculum designs, and management practices. The implementation of a properly conceived plan that supports the integral functions of technology holds great promise for the advancement of learning and research at Alabama State University.

Committee Charge

The Technology Committee was charged with assessing the current status and use of information technology at Alabama State University and with developing a University-wide plan to provide for instructional, administrative, and support needs of the University for the decade 2000 to 2010. The assessment and needs projection aims at providing the University with a clear road map for moving from its current information technology status to its proposed future status. Specifically the committee's charge was to:

1. Outline clearly the components of the University's information technology system or what the system should reasonably provide to all areas of the University as one looks to the future;
2. Describe, with some level of specificity, what our current system provides;

3. Set forth, with clarity and specificity, the differences between reasonable expectations of services provided, and the level at which these services are currently being provided in each area of the University. Provide an analysis of the service deficits at Alabama State University.
4. Set forth the logical sequence to follow for bridging the gap between current status and formulate a reasonable goal for providing updated computer technology services.
5. Set forth an approximate timetable for implementing the plan.
6. Set forth an annual cost estimation for implementation of the plan.

Committee Membership

1. Dr. Peter Macchia, Committee Chair, College of Education
2. Dr. William Colvin, College of Arts and Sciences
3. Mr. Cedric Davis, Library
4. Mr. Doug Bristol, School of Music
5. Mr. Larry Cobb, Director Academic and MIS Computing
6. Dr. Kamal Hingorani, College of Business Administration
7. Dr. Deborah Little, College of Education
8. Mr. Charles Stresino, Health Sciences
9. Dr. Daniel Vertrees, College of Education
10. Mrs. Sandra B. Walker, University College
11. Dr. Emmadene Winston, College of Arts and Sciences
12. Dr. Yongzhi Yang, College of Arts and Science

INVESTIGATIVE PROCEDURES

The technology subcommittee of the SACS Self-Study Committee began its assessment of technology utilization at Alabama State University by answering five questions:

- What technology resources already exist and how are they used?
- What is the role of technology from the perspective of the university, colleges, schools, and faculty?
- What organizational structure can best support the role or vision for technology?
- What types and amount of software and hardware are needed?
- What training is required for faculty, staff, and students in the use of computer technology?

The Technology Committee gathered answers to the above questions through several surveys and personal interviews with faculty, administration, staff, and students. Detailed discussions of the specific methodology and findings are in the sections that follow. In addition, members of the committee were organized into focus groups around the above questions. The focus groups met frequently to discuss findings and propose additional avenues of investigation. The Technology Committee also met as a whole to review findings of the focus groups and to present its recommendations.

FINDINGS AND ANALYSIS

1. What Technology Resources Already Exist and How Are They Used?

Both academic and administrative functional areas of Alabama State University's technology resources were examined. Although the committee recognizes that these two areas are interrelated, the findings for this question are discussed separately.

Academic Functions

The Technology Committee conducted a survey of both faculty and student computing resources. (See Appendix 1 for the survey instrument) Analysis of the results indicated a wide variance of technology availability and use. The following is a summary of the findings.

College of Business Administration (COBA): All faculty members have a computer and printer on their desks. Software packages used are business related (Peachtree, Learning Plus, Quickbooks) as well as standard office software (word processing, database, spreadsheet, slide presentation, etc.), and multimedia software. The Computer Information System Department holds regularly scheduled training workshops for its faculty and staff. Faculty computers are attached to the University's network. COBA has computers available to students (68 Pentium type computers) in laboratories available on a 24 hour basis.

The College of Business is assigned the responsibility of teaching *Introduction to Computer Information Systems (CIS 205)* to most majors in the University. On an average, about 325 students enroll in this course every semester. The average class has an enrollment of 30 students. The present lab has only 18 Pentium 133 MHz computers, which are inadequate for the class size. Plans exist for the acquisition of additional student computer support.

Students currently have access to word processing, database, spreadsheet, remedial programs, slide presentation programs, statistical programs, and educational software programs. Student laboratories are attached to the University's network. Computer labs are supported by

the College of Business Administration laboratory managers and by the University's Management Information System (MIS).

College of Education (COE): Almost all faculty members (90%) have a computer and printer on their desks. Software packages used are primarily standard office software including word processing, database, spreadsheet, and slide presentation. Some faculty members have begun to integrate technology into their standard instruction. The Instructional Technology faculty of the COE recently held training workshops for the faculty. For the most part, faculty computers are attached to the University's network. A plan to connect the remainder is in place. The COE has several computer labs available to students; however, these labs, with exception of Rm. 325 Council Hall and the Teacher Education Center in Paterson Hall, are or are becoming outdated (486 computers with limited storage capacity and no network support). Students currently have access to word processing, database, spreadsheet, remedial programs, slide presentation programs, and educational software. Student laboratories in the Teacher Education Center (10 computers) and 15 of the 35 computers in the Levi Watkins Learning Center Room are attached to the network. The twenty computers in the Macintosh Lab are in the process of being connected to the network. Computer labs are supported by College of Education's laboratory manager (vacant) and by the University's Management Information System (MIS).

College of Arts and Sciences: The College of Arts and Science's computer resources vary from department to department and consequently are analyzed individually.

The Department of Mathematics and Computer Science and the Department of Physical Science share a Multimedia Classroom containing 25 Pentium computers. Most of the faculty members in these departments have a computer on their desks and have access to a printer. Twelve of the 19 faculty computers are networked.

The Biology Department has a new multimedia classroom with 29 Windows NT workstations and NT server. The seven faculty members have computers; four are older 486 models. The biology faculty computers are also networked.

The Department of Social Work faculty (3) has an IBM and an IBM compatible computer and two laser printers. Both computers are connected to the network. The Department also has an Apple Computer that is networked for printing but does not have Internet access. A networked printer is available across the campus.

The Department of Visual and Theater Arts faculty has six unnetworked stand-alone computers and two printers. The Theater program has a networked computer with a printer. The Art Department has a technology laboratory that consists of seven Macintosh computers that are not networked.

The Department of Communications Media faculty has access to five Macintosh computers (not networked) and a printer. The Department of Communications media lab includes 12 Macintoshes (not networked) and Laser Writers.

The three departments of Criminal Justice faculty computers consist of one Pentium, and two older computers and dot matrix printers.

The History Department faculty has access to five Pentium computers and its lab consists of 386 and 486 type computers.

The faculties of the Department of English, Foreign Languages, Philosophy and Speech do not have desktop computers nor access to a laboratory.

The Sociology, Criminal Justice, and Social Work faculty share a Social Science student laboratory that presently contains 12 computers. This laboratory will move to larger quarters before the end of the 1998-99 academic year and double the number of computers available for student use (from 12 to 24).

School of Music: The School of Music's computers are primarily special function Macintosh computers. They are used primarily for music notation and sequencing. Computers in the student

labs are connected to the network with several providing Internet access. Faculty computers are primarily Macintosh; and while they are connected to the campus network, they have had numerous connectivity problems.

University College: The University College has the fewest technology resources of all the academic units at ASU. Fewer than two percent of the 58 faculty have a computer at their desk. However, the technological resources of University College will change dramatically with the arrival of 70 new computers and interactive software for its academic intervention program. The University College has also authored a technology plan to further prioritize its technology efforts.

Health Sciences: The newest academic unit at Alabama State University moved quickly to obtain the necessary resource for its faculty and students. It currently has nine Pentium computers and forecasts a need for an additional 21 computers (16 Pentium and 5 Macintosh) as the program and faculty grow. All computers have access to the ASU network. Typical computer applications are content related or are Health Information Management programs. Standard office software (word processing, database, spreadsheet, slide presentation, etc.) are also used. The Health Science program requires additional statistical and content related software. Projected student population growth will require additional computers (22 Pentium and 4 Macintosh)

Levi-Watkins Learning Center: The University Library has 14 networked computers for patron use. These computers are supported by three networked printers, one on the first, third, and fourth floors. Each computer provides access to networked CD-ROM and INTERNET resources. An additional 28 computers and two network printers are required for adequate patron access throughout the library. The second floor computer lab has ten computers available for students during all hours of library operation (M-Th, 8a.m.- 11p.m; Friday, 8a.m.-5p.m; Saturday, 10a.m. - 4p.m; Sunday, 2p.m. - 9p.m.). Access to word processing, spreadsheet, and presentation software is limited due to older computers with limited storage capacity, inadequate

processor speed and network wiring problems.

All faculty and staff computers in the library are networked. Standard word processing, spreadsheet and presentation software packages, along with library related applications, are accessed from staff machines. The current library management system is unable to provide appropriate access to library resources for their customers and the parent company has shifted its support and development focus to their client/server based product. The need to migrate to a new library management system is imminent.

The use of technology is vital to the operation of the University Library. Access to information in various formats, exchange of information with other libraries, and participation with local and international networks will require on-going technology solutions for the library.

Administrative Functions

Financial Record System (FRS): The Management Information System and Academic Computing Directorate (MISAC) is in the process of implementing a new SCT financial record system. The estimated completion date and expected enhancements for each function are as follows:

Fixed Assets/Inventory Estimated completion date: March 31, 1999.

This system enables the university to track and maintain all the necessary information on its fixed assets from initial purchase through annual risk evaluation and disposal. It provides a cost-effective method and accurately report the value of plant assets.

Budget Development Estimated completion date: February 29, 1999.

This system automates many of the budget preparation functions and reduces the amount of paperwork generated.

Cash Receipts Estimated completion date: August 6, 1999.

This system tracks the amount of cash owned by each general ledger fund account. Its reports enable the monitoring of receipts and disbursements in each account.

Human Resource System (HRS):

MISAC is implementing a new SCT HRS system. Estimated completion date of this system is October 1999. Some functions of this system are already operational and are undergoing evaluation.

Alumni Development System (ADS): Estimated completion date: September 1999.

This system is used to support both annual and capital campaigns.

Loan Management System (LMS):

This system provides for the proper management of the student loan function. It can maximize available loan funds, meet increasingly complex, rigorous regulatory and institutional requirements, and reduce the cost and time associated with the administration of loans. The Federal Compliance for this area has already been achieved (Jan 1997). Other areas such as: Loan Portfolio Management is expected to be completed in May 1999. Due Diligence and Billing and Collection are expected to be completed in September 1999.

Student Information System: Estimated completion date: September 2000.

A comprehensive student information system is in the development processes. This system will include such areas as Admissions, Student Records, Financial Aid Management, Billing/Receivables, Housing, Degree Audit, Voice Response and Visage - a PC based Management Decision System.

Campus Connectivity:

The following is a listing of the current status of building network connectivity.

College of Business Administration	Completed
Fine Arts	Completed
Acadome	Completed
Early Childhood Center	Completed
Paterson Hall	Completed
Health Sciences (temporary location)	Completed
Beverly Hall	Completed
McGhee Hall	Completed
Faculty Housing	Awaiting Requisition Approval
Council Hall	In progress
Trenholm Hall	In progress
Dormitories	Awaiting Requisition Approval
Maintenance	Pending Renovation Approval
Lockhart Gym	Pending Renovation Approval

Distance Education Facility

ASU operates a distance education center that has two-way video and audio conferencing capabilities, individual computer stations, large screen monitors, and state of the art projection devices.

2. What is the role of technology from the perspective of the university, colleges, schools, and faculty?

The evolution in information technology has changed methods used to teach and learn; how information is stored and accessed; the scope of faculty research; and ways to connect with

current and prospective students, faculty and staff, alumni, government, industry, and the larger world community. Prospective employers today expect all university graduates to be well versed in state-of-the-art technology. To this end, therefore, the Technology Committee sets forth the following vision statement for the implementation and use of technology.

Vision Statement:

The technological vision at ASU is to provide all students with hands-on experience using current state-of-the-art technology which they may encounter in the workplace and to equip them with skills and confidence to use existing technology and to adapt quickly and effectively to technological change. It also aims to make available the technological resources faculty and staff require to provide these learning experiences, further research, and to enhance the University environment.

Immediate technological enhancements are necessary at all existing facilities at ASU - classroom, library facilities, instructional laboratories, dormitories, faculty offices, registration facilities, administrative offices, and management information services. Current and new faculty and staff require training, on-going support, and services to make use of available technologies.

3. What Organizational Structure Can Best Support The University's Information Technology Needs?

The current growth of information technology places increasing demands on human and financial resources of Alabama State University. There is a need to centralize planning for the efficient management and coordination of all resources. Access to information technologies is more than a question of hardware, software, network connections, and operating systems. Just as important are institutional planning, financial management, intracollegiate and interdepartmental coordination, and the provision of support to all faculty, staff, and students.

Support for technology is presently decentralized throughout the University. Each college and school has its own support system for maintaining computers, and supporting faculty, staff, and student needs. Currently, the MIS and Academic Computing Directorate is not sufficiently staffed nor is it organized to support the growing technology needs. MIS currently reports to the Vice President for Administrative Services. In addition, there is no support for academic computing. As indicated by the faculty and staff needs assessment survey, faculty members do not have a centralized location for their academic computing needs. There is no coherent support system for hardware, software, repair, and supply needs, or training.

While there are strong organizational needs for separate information technology expenditures and support to originate from different academic units and administrative offices, the Technology Committee contends that central planning can do the following:

1. Help to identify and eliminate redundant and otherwise unnecessary expenditures,
2. Provide a formal mechanism for encouraging integration of services where applicable,
3. Promote more innovative and efficient use of available resources, and
4. Facilitate integrated reporting to external state agencies.

The specific organizational structure that the Technology Committee believes will best meet the technology needs of ASU can be found in the Recommendations Section of this chapter.

4. What Types and Amount of Software and Hardware Are Needed

Survey results indicate that the primary technology needs for faculty and staff at Alabama State University are printers, PCs, scanners and fax machines. The committee recommends standardizing on an IBM/Windows compatible PC hardware platform. The exception to this would be for teacher education programs that require that students be instructed on both

IBM/Windows compatible and Macintosh computers. Departmental scanner(s) and a campus wide networked fax solution should be implemented immediately. A site license for standardized word processing, spreadsheet, database and presentation software should be purchased for all departments and administrative offices at Alabama State University.

In addition, network software that would allow students to be admitted to the university, to access their records, and to obtain information from their instructors via the Internet needs to be fully funded. Alumni should also have similar access to maintain their link to the university. Faculty and advisors need a software solution that gives them easy access to student records, course schedules, student registrations, course rosters, course wait lists, and course catalogs. There is also a need for a student audit system to ensure students have met all the curriculum requirements for a particular degree and which tracks their progress towards that degree. Specific software and hardware needs by each area are indicated in the technology plans at Appendix 4 and are summarized in the table below. Estimated costs for the technology requirements are also indicated.

Table 7.1

Hardware/Software Requirements

	Hardware/Software Requirements	Estimated Costs
1.	College of Business Administration	
	• Upgrade of CIS 205 lab	\$ 70,000
	• Upgrade of CIS major lab	60,000
	• New Lab for the Masters of Accountancy Program	60,000
	• Six portable multimedia systems	30,000
	• Upgrade the COBA Server	15,000
	• Replace current hub with one with 250 connections	25,000
	• Distance Education Laboratory	250,000
	Sub Total	\$410,000

	Hardware/Software Requirements	Estimated Costs
2.	College of Arts and Science	
	Art: <ul style="list-style-type: none"> • Upgrade or replace present computers 	\$ 15,000
	Biology: <ul style="list-style-type: none"> • Networking of computers not currently networked 	3,000
	Communications Media: <ul style="list-style-type: none"> • New computer lab (30 computers) • 15 computers for faculty • 2 Laser printers 	60,000 30,000 8,000
	Department of Criminal Justice <ul style="list-style-type: none"> • Computer lab (10 computers) with networked printer, scanner • Multimedia classroom 	25,000 150,000
	Department of Social Work <ul style="list-style-type: none"> • 2 faculty computers 	4,000
	Department of History and Social Sciences <ul style="list-style-type: none"> • Upgrade current Social Science Laboratory 	150,000
	Department of English, Foreign Languages, Philosophy, Speech, and Theater <ul style="list-style-type: none"> • 20 faculty computers • computer lab. 	60,000 150,000
	Department of Mathematics, Computer Science, and Physical Science <ul style="list-style-type: none"> • 10 multimedia computers with networking capabilities for faculty. • 5 printers for faculty use. • 10 multimedia computers with networking capabilities for student use in the technical laboratory. • 10 computers with interfaces for use in experimental laboratories. • scanner for faculty use. 	20,000 1,000 20,000 30,000 500
	Subtotal	\$726,500

	Hardware/Software Requirements	Estimated Costs	
3.	College of Education <ul style="list-style-type: none"> • Replace the 35 IBM compatible computers in room 536 of the Library and provide them with Internet and network access. • Replace the 25 Macintosh computers in room 546 of the Library and provide them with Internet and network access. • Replace the 15 computers in the Office Education program. • Provide 10 computer systems and printers to the remaining College of Education faculty members that do not have desktop computers. • Three portable multimedia systems are needed to increase the use of multimedia in the classroom. • Network the multimedia classroom in Rm. 325 of Councill Hall. 	\$ 70,000 105,000 30,000 20,000 15,000 Ongoing	\$240,000
	Subtotal		
4.	School of Music <ul style="list-style-type: none"> • Upgrade all software with software applications such as Finale 98, Smart Music System, Master Tracks, etc. • Two practice rooms should be equipped the latest in technology including a with a MIDI workstation and a practice accompaniment program. • Add additional memory to all computers 	\$10,000 18,000 2,000	\$30,000
	Subtotal		
5.	University College <ul style="list-style-type: none"> • Provide 60 Pentium class desktop computers and printers for faculty member use. • Provide 15 laptops for support of graphical display for mathematics courses. • Provide 5 laptops and 5 LCD projectors for multimedia use in the classroom. 	\$120,000 45,000 50,000	\$215,000
	Subtotal		

5. What training is required for faculty, staff, and students in the use of computer technology?

Training in software use needs to be a continuous on-going process. New software and software updates are a fact of life and as such require a formal structure for training accomplishment. These training sessions should be offered on a regular and periodic basis. In addition, as distance education becomes a more common means of course presentation, training in the use of the equipment involved must be provided on a regular basis.

RECOMMENDATIONS

The Technology Committee proposes a number of recommendations that will enable Alabama State University to move from its current information technology status to a much-improved status. For purposes of this self-study, the committee's recommendations are categorized into seven areas. The categories of recommendations are as follows:

- **Enhance information technology organizational structure**
- **Expand and improve administrative computing services**
- **Expand and improve academic computing services**
- **Increase the quality of and access to information**
- **Enhance the student experience from recruitment to alumni status**
- **Increase distance education capabilities**
- **Provide technology training**

These categories are not discrete but rather are closely interrelated. The placement of a recommendation in one area is only a convenience for this document and is not meant to ignore the relationships that may exist. Moreover, it must be stressed that few of these proposals can be implemented without increases in resources and commitment on the part of the administration, faculty, staff and students of the university.

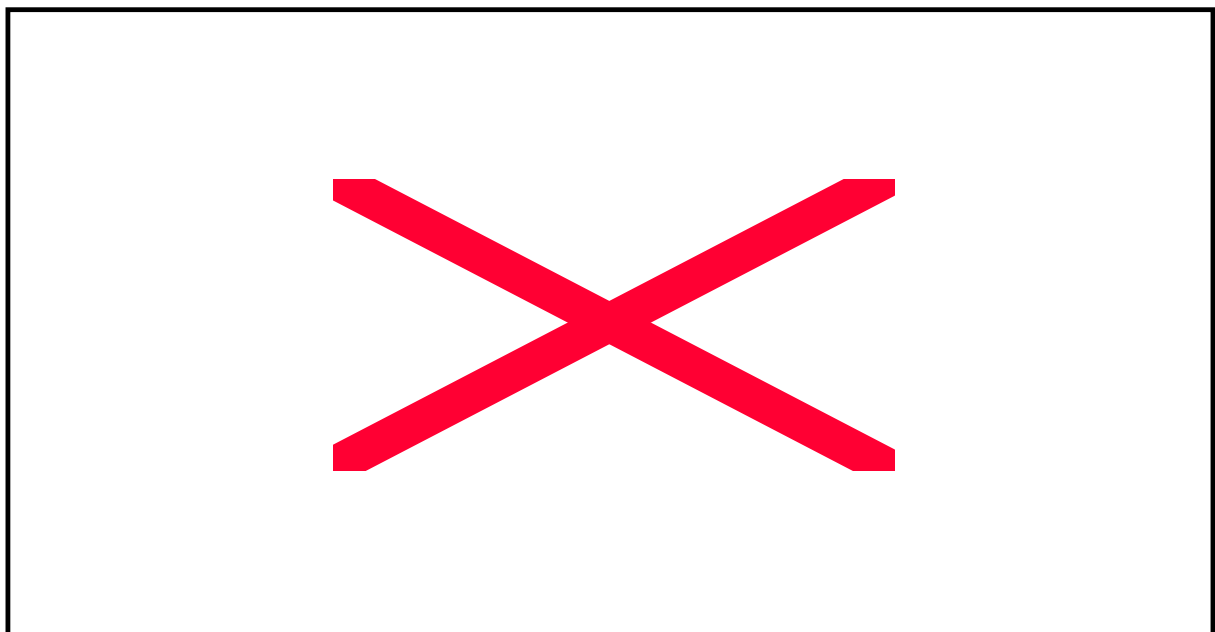
Enhance Information Technology Organizational Structure

Computer technology and telecommunications are indispensable and ubiquitous tools for everyday university activities. As such, the organizational structure of the University should reflect the ever-increasing importance of this technology.

Recommendation 1: Organizational Structure

The Committee recommends that the University establish a clearly defined organizational structure for information technology that reports directly to the President. The organization should contain a sufficient staff of people with the appropriate experience and background in technology, management, training, and human relations. Figure 7.1 represents the proposed organizational structure. Currently, the Director of Management Information Systems and Academic Computing (MISAC) reports to the Vice President for Administrative Services. As a result of the University's reliance upon technology and the increasing number and type of technological resources that are managed, the Chief Information Technology Officer should report directly to the President of the University.

Organizational Structure to Support Technology Needs



Recommendation 2: The duties of the Chief Information Technology Officer should be as follows

1. Identifying, prioritizing, and resolving information technology issues within the context of a comprehensive campus-wide information technology master plan;
2. Convening campus-wide teams (ad hoc subcommittees and task forces) to research and define information technology standards and policies;
3. Publishing and promoting these standards and policies;
4. Maintaining awareness of external information technology standards and best practices among peer institutions and in industry and
5. Providing academic computing support.

In addition, three directorates should be organized under the Chief Information Technology Officer: Administrative Computing, Technical Support, and Academic Computing.

Recommendation 3: The duties and responsibilities of the Administrative Computing Directorate should be as follows:

The Director of Administrative Computing reports to the Chief Information Officer for Information Technology. The Division will provide support for the computing functions necessary for efficient and effective administration of the university. The Administrative Computing Division will be responsible for the following:

1. Set policies regarding administrative use of computing services
2. Provide financial services support to include Payroll, Budgeting, and Purchasing
3. Maintain student information including demographic information, enrollment, grade information, and alumni data
4. Maintain Human Resources Information to include demographic information, faculty, and staff rank, faculty tenure, payroll information
5. Support Facility Planning to include maintenance, amortization, and interface with Academic Affairs for classroom scheduling of technology classrooms and

laboratories.

6. Support Inventory Control for receiving, shipping, and bar code inventory
7. Operate administrative Computing Help Desk
8. The proposed help desk would provide a central location for information delivery and problem management. It should be available for any member of the university community experiencing trouble with administrative applications and mainframe access. The Help Desk must support walk-in requests for assistance in all aspects of administrative Computing. It also should provide training for all administrative applications for any member of the university.
9. Mainframe Computing

This directorate will also ensure security of administrative data and maintain data backups and password integrity on the University's mainframe computer and identify, assist in selection, install, and maintain software packages for administrative functions, and support the operations on a daily basis.

Recommendation 4: The duties and responsibilities of the Technical Support Directorate should be as follows:

The Director of Technical Support will report directly for the Chief Information Officer for Information Technology. The primary functions of the Technical Support Division are listed below.

1. Set policies regarding network access and security.
2. Maintain Network Services

Network Services group would be responsible for the administration, management and design of the University-wide network. In addition it would be responsible for supporting the Web server, the e-mail system and the firewall and all network cabling to include the campus Wide Area Network (WAN) and Local Area Networks (LAN).

3. Microcomputer Problems and Hardware Repair

4. The Hardware Repair Center, depending on the nature of the repair, will send the equipment-needing repair back to the manufacturer (if under warranty), send it out for local repair, or repair the part “in-house.”
5. Recommend Networking Hardware and Software Acquisition support with approval from the Technology Resource Committee as well as site license acquisition with software vendors to purchase software licenses in bulk for the ASU community.
6. Digital communications services (including, data networking, video distribution and voice technology services).
7. Maintain a Technical Help Desk
This help desk would be available for any member of the university community experiencing trouble with their University owned desktop or laptop computer. The help desk would support walk-in requests for assistance in hardware related problems.

Recommendation 5: The duties and responsibilities of the Academic Computing Directorate should be as follows:

The Director of Academic Computing will report directly to the Chief Information Officer for Information Technology. The Director of Academic Computing would be charged with the following responsibilities:

1. Set policies regarding academic use of computing services
2. Manage and maintain the library automation computing system (database maintained by libraries);
3. Provide user training and consultation for commonly used desktop applications and specialized academic software;
4. Find and exploit outside funding sources for capital purchases.
5. Manage Campus Distance Education Centers and Computing Labs
6. Recommend Hardware and Software Acquisition with approval from the Technology Resource committee
7. Acquire site licenses with software vendors to purchase software bulk for the

Academic community.

8. Identify, assist in selection, install, and maintain software packages for academic functions.
9. Maintain Campus Computing Labs including lab hardware and software (including virus software).
10. Supervise student assistants who are employed to manage the lab and call the appropriate Help Desk if problems arise.
11. Operate the Academic Computing Help Desk

The Help Desk would provide a central location for information delivery and academic software assistance. It should be available for any faculty or staff member of the university community requiring assistance in academic computing use. Refers hardware problems to the Technical Help Desk.

Recommendation 6: Technology Resource Committee

A standing Technology Resource Committee should be appointed. This committee should be composed of a faculty member from each college and school, staff members from each administrative unit, and an elected student representative. It should meet monthly and provide a forum for discussing technology issues and insights with the Chief Information Technology Officer.

Expand And Improve Administrative Computing Services

Work environments and employees are becoming increasingly technologically sophisticated. Just as in the academic areas, connectivity, information access, and electronic transfer will become standard operating procedures. Moreover, the exchange of information with outside organizations will rely more upon electronic processing. The university must be able to communicate and conduct business with other entities efficiently, using current technology

Alabama State University is in the process of implementing a number of technological systems that will improve both its academic and administrative functions. These advances are described in the Findings and Analysis section of this report. In addition, many of the recommendations that fall under this category can be found under the duties and responsibilities of the Director of Technical Support and the Director of Administrative Support. However, the Committee proposes the following additional recommendations.

Recommendation 7: Technology Life Cycle Funding:

It is essential that the University develops a plan for information technology expenditures, provide adequate and ongoing training to personnel supporting computing resources in departments and colleges, and provide adequate computing power to both faculty and students. Moreover, a campus-wide view of all major information technology budgets and expenditures would result in substantial progress toward both the integration of information resources and their efficient use.

Any new financial model for information technology resources must include life cycle budgeting. Life cycle funding is defined here as the practice of formally recognizing periodic technological obsolescence and budgeting for the subsequent replacement of computer hardware and software. Life cycle budgeting is intended to fund essential technology

resources as enduring necessities rather than viewing them as one-time, ad hoc funding decisions. Life cycle funding is also necessary for ongoing support costs such as training.

Recommendation 8: *Complete the initiatives taken for Admissions and Records, Financial Aid, Billing and Receivables, and Human Resources.*

ASU has made some positive steps towards modernizing its administrative functions. The committee supports these initiatives and recommends that funding be provided to complete them.

Recommendation 9: *Complete Y2K software corrections and updates to include desktop computers.*

The year 2000 (Y2K) phenomenon is real. While there is a concerted effort by MIS and Academic Computing to ensure that mainframe and network applications are Y2K compatible, the same efforts need to be expended to ensure that desktop software can handle the Y2K problem. There are software packages which can check legacy programs such as earlier editions of the Excel spreadsheet program that still may be in use on campus.

Recommendation 10: *Develop a campus-wide secure access solution*

To preempt unauthorized access the university network and to alert the system security administrator when anyone attempts to enter the network without authorization, ASU must have a "firewall" and other system security management capabilities. Hardware and software solutions are only part of the solution. The university must hire a Certified Network Engineer (CNE). As the university's processes and records become more and more reliant upon the network, the need for a CNE become critical.

Expand And Improve Academic Computing Services

The demand for computing and information services will grow indefinitely. Instructional technology and new media will become increasingly important both in and out of the classroom. ASU faculty, staff and students must have easy access to electronic information resources. Moreover, Alabama State University will want to continue to attract and retain outstanding scholars and scientists. Such faculty members will require up to date computing equipment, software, and appropriate support. They will expect a well-equipped library and classrooms that meet their teaching needs. Moreover, faculty and staff will need guidance and support in the use of information technology hardware and software.

Recommendation 11: Faculty Network Connection and Dial-Up Connection.

While providing every faculty member a computer is the first step in bringing ASU to the information age, it is equally important to ensure that the computers have Internet access. Every faculty member must have Internet access and must be required to learn how to communicate via the Internet and access the vast amount of information that is electronically available. The Internet is rapidly becoming a virtual library and is of particular importance to teaching and research in our university. Dial-up connection is important for faculty members who have home computers and need to work at home. While dial-up connection is currently available on a limited basis, technical support is needed to help in the use of this service. Moreover, the number of dial-in lines needs to be increased. The current seven lines are becoming insufficient to handle the current needs. There is also a need to develop an easy-to-install and easy-to-use software package that would automatically configure a faculty's home computer to use ASU's dial-up server. The software should support both Windows and Macintosh operating systems.

Recommendation 12: Faculty Member E-mail Accounts

Providing every faculty member an E-mail account has become a common practice in most universities. ASU is already several years behind. Technically, ASU has the capacity to provide all needed E-mail accounts with existing equipment, but the university must commit or acquire staff to manage over 5000 student, staff, and faculty accounts. At least one full time staff and one to two part time student workers are needed for this task.

Recommendation 13: Establish Help Desks for Administrative Computing and Academic Computing

As detailed in the duties and responsibilities of the Administrative Computing and Academic Computing Directorates these help desks are essential for the continued use and operation of technology by the faculty, staff, and students.

Increase The Quality Of And Access To Information - Total Campus Access

Alabama State University must be networked for total campus access. All existing and future buildings should be able to access the campus network. Total campus access would facilitate innovative teaching methods, enhance student learning and access to information, and improve administrative functions and communication both internally (campus-wide) and externally (local, state, national and international).

Recommendation 14: Network all classrooms

Every classroom should be networked so that faculty may use the network or computer technology for presentations within the classroom. The next part of this recommendation - wiring each classroom for student network use during class is more problematic. Power is a primary concern. Many buildings do not have sufficient outlets to do this safely. In addition, any wiring for the network will, in older buildings, require many more creative solutions that will be more costly than traditional wiring such as wireless networks. Many, if not most, of our classrooms make it impossible to use any method of presentation other than lecture and chalk. Lighting has to be changed to enable dimming, windows need blinds to darken the rooms, and some additional equipment has to be acquired to allow for the fullest possible use of these rooms.

Recommendation 15: Network Student Dormitories

Student dormitories need network and Internet support. Initially, a student lab should be placed in each dormitory. These labs should have the capability of accessing the library collections, the Internet, and e-mail. Eventually, each dorm room should be wired for network and Internet access.

Recommendation 16: Make Computer Labs More Accessible to Students

In order to maximize the usage of the limited number of computer labs available on campus, lab hours must be extended. For example, the College of Arts and Science computer lab, which is the only lab on campus that has the necessary software for computer science majors, only opens from 9am to 5pm during weekdays. In universities that have computer majors, it is common to see computer major students working on computers day and night and during weekends. Funds must be allocated to hire more staff and student workers in order to extend the lab hours. Locations and hours of all computer labs should be made available to all students.

Recommendation 17: Provide Student e-mail accounts

Providing every student an E-mail account has become a common practice in most universities.. Faculty and administration could then have an efficient means of contacting students regarding class work, campus events, or other administrative matters. While COBA students have been assigned e-mail accounts, this should be an automatic procedure when a student enrolls at ASU regardless of the intended major area of study. Students need to have an assigned e-mail account so that they can receive campus information and e-mail from the faculty and staff.

Recommendation 18: More Computer Classrooms are needed

At least one classroom in each college must be designated as a computer classroom. In the College of Business Administration and the College of Arts and Science, where all introductory computer courses are taught, more computer classrooms are necessary. A plan is needed for the continued maintenance and upgrade of computer equipment in the current laboratories/classrooms.

Recommendation 19: Upgrade the Library computerization and access

Despite the growing use of technology for research in non-library locations, the library will still be the primary location for student and faculty research for the foreseeable future. Library patrons should be able to access information in various formats in an interactive seamless manner, including print, media and electronic resources regardless of whether this information is located within the physical confines of the library or available from remote access points. Consideration for the non-ASU library user must also be taken. The Library's very important public service mission should not be restrained by limiting access, or creating roadblocks between the public their information needs.

Recommendation 20: Networking protocols need to be standardized.

The current network is running both token ring and Ethernet. In addition, with the exception of the Science Building, the Ethernet that is being used is not running true TCP/IP but rather it is running IPX through a gateway. The committee recommends that an Ethernet system be used as the standard. True TCP/IP (static or dynamic) can be run on existing Token Ring networks in Council Hall, Library, and COBA so no hardware change is necessary. Costs of Novell and GroupWise software would be eliminated and network speed would be increased as well as become more reliable.

Recommendation 21: There is a need for standardizing on an IBM compatible PC hardware platform.

To facilitate repair and upgrade of computer equipment, the committee recommends that the university, whenever feasible, select a standard PC manufacturer. This recommendation is not meant to remove the requirement for the College of Education to maintain a Macintosh teaching laboratory.

Recommendation 22: *There is a need for standardizing the software applications across the university.*

The university should standardize its software applications. For example, Microsoft Word or Corel WordPerfect should be designated as the university standard for word-processing. Standardization should include word-processing, database, spreadsheet, grade record keeping programs, and statistical analysis programs. Standardization would facilitate intra-university communication, sharing of documents, and training programs on the particular software package.

Recommendation 23: *Make investments in technology improvements as we renovate and build new classrooms, activity centers, and residence halls.*

All university buildings need to be part of the university network. In addition, the Chief of Information Technology needs to have the function of ensuring that all new construction and renovations include network wiring in there plans.

Enhance The Student Experience From Recruitment To Alumni Status

The student experience often begins before admission and can continue throughout one's lifetime. That experience extends beyond the classroom into many areas that add to the overall impressions of the University. Technology can enhance these impressions. Students increasingly will have been reared and educated in an electronic and visual environment. They will arrive on campus computer literate and expect convenient access to computing and electronic information resources.

Recommendation 24: Develop the ability to enable prospective students to apply to the University and seek financial assistance electronically and more specifically using the Internet.

Competition for able students, the students which Alabama State University wants to attract, will continue and very likely intensify. The university must continue to enhance its competitive attractiveness. When competing for top students, time is often critical. The current application process beginning with the prospective student requesting an application by phone or through the mail, sending the materials by mail, and mailing the application back to the University, can take several weeks. Using the Internet, this process could take only minutes. Consequently, the student would get a more expedient reply. In addition, the entire university catalog, undergraduate and graduate, should be accessible through the Internet.

Recommendation 25: Allow current students to learn about class offerings, campus events and check on final grades using the Internet.

Many Universities' throughout the country have moved from telephone registration to Internet registration. While this procedure places more responsibility on the student to select the correct courses required by his or her major, it provides a more efficient vehicle for what is very often a frustrating and cumbersome procedure. The Internet is also a useful vehicle in publicizing events and other ASU newsworthy items.

Recommendation 26: *Facilitate alumni to access their records and stay in touch via e-mail or the Internet.*

Lifelong professional learning is a characteristic of our age. Alumni represent a great source of future students. By keeping graduate files active, graduates of Alabama State University would be able to access their records via the Internet and the university could recruit graduates back to the campus. The Graduate Catalog should be "web accessible" to facilitate re-entry of our baccalaureate students into a graduate program. Topics of interest to our graduates should be posted on the University's web site. The committee feels that it is important to maintain a strong positive relationship with its graduates.

Recommendation 27: *Develop a procedure for student purchase of a personal computer through the University.*

The Student Survey indicated the following percentages for personal computer (PC) ownership:

- Freshmen 28 % (7/25)
- Sophomore 28 % (13/47)
- Junior 33 % (12/36)
- Senior 36 % (8/22)
- Graduate 25 % (1/4)

These numbers indicate that students need to be provided with a procedure for purchasing a computer through the University. Students also indicated a desire to purchase a computer through the University. Many computer companies will offer student discounts and University discounts for the purchase of computers. The same opportunity for computer purchase should be offered to faculty and staff.

Increase Distance Education Capabilities

Distance Education can reach a wider student audience, meet the needs of students who are unable to attend on-campus classes, involve outside speakers who would otherwise be unavailable, and link students from different social, cultural, economic, and experiential backgrounds. With these advantages come several challenges: faculty need to be provided instruction on developing and presenting a distance education course; support personnel must be provided to ensure the 'details' of presenting a distance course are accounted for; and facilities must be made available both on campus and the remote sites.

Recommendation 28: Provide faculty training in conducting distance education courses

Meeting the instructional needs of students is the cornerstone of every effective distance education program, and the test by which all efforts are judged whether they be in a campus taught course or a distance education course. The challenge facing any distance education is a to provide students with a vehicle to interact with each other and the faculty member. The success of any distance education effort rests squarely on the shoulders of the faculty. Special challenges confront those teaching at a distance. They must adapt teaching styles taking into consideration the needs and expectations of multiple, often diverse, audiences. In addition they must develop a working understanding of delivery technology, while remaining focused on their teaching role. And just as importantly, they must function effectively as a skilled facilitator as well as content provider.

Recommendation 29: Provide a support staff for distance education courses

These individuals ensure that the myriad details required for program success are dealt

with effectively. Most successful distance education programs consolidate support service functions to include student registration, materials duplication and distribution, textbook ordering, securing of copyright clearances, facilities scheduling, processing grade reports, managing technical resources, etc.

Recommendation 30 *Involve faculty members distance education planning*

The technology committee recognizes that distance education facilities are being developed on campus and at several remote locations. However, the current 'incubator' site is underutilized. The committee believes that the paucity of faculty involvement in its development and no faculty training in distance education course development has resulted in low faculty interest. Faculty should be involved in distance education site development

Recommendation 31: *Encourage the Development of Web Based Courses*

There are some courses that require more independent work than others. These should be considered as candidates World Wide Web for offerings. The combination of websites, listserves, conferencing and electronic drop boxes would provide a different, yet complete, educational experience for some students--as well as offer the possibility of reaching students who would not normally commute to the Alabama State University main campus or branch campuses.

Provide Technology Training

Training in software use needs to be a continuous on-going process. New software and software updates are a fact of life and as such require a formal structure for training accomplishment.

Recommendation 32: The Academic Computing Directorate should provide training in the standard University software applications (word-processing, database, spreadsheet, statistical analysis, etc.)

These training sessions should be offered on a regular and periodic basis. In addition, as distance education becomes a more common means of course presentation, training in the use of the equipment involved must be provided. Moreover, instruction on the design of distance education courses needs to be offered on a regular basis.

RECOMMENDATION IMPLEMENTATION

The recommendations made above are restated below in terms of their accomplishment. Short term is defined as a recommendation that can be implemented immediately or within the first year. The implementation of recommendations that are designated as Intermediate should be accomplished between two and three years. Long term recommendations should be implemented within five years. Continuing recommendations are those that have already been begun but also should never stop being implemented.

Table 7.2

Recommendation Implementation and Estimated Costs

	Recommendation	Short, Intermediate, Long Term, or Continuing Requirement	Estimated Cost	Individual(s) Responsible
Enhance information technology organizational structure				
1.	Implement Organizational Structure to Support Information Technology	Short Term	No Additional Cost	President
2.	Appointment of a Chief Information Technology Officer	Short Term	\$70,000	President
3.	Appointment of Administrative Computing Directorate	Short Term	No Additional Cost (Existing Personnel)	Chief Information Technology Officer
4.	Appointment of Technical Support Director	Short Term	No Additional Cost (Existing Personnel)	Chief Information Technology Officer
5.	Appointment of Academic Computing Director	Short Term	\$54,500	Chief Information Technology Officer
6.	Appointment of a Technology Resource Committee	Short Term	No Additional Cost	President/Executive Council

	Recommendation	Short, Intermediate, Long Term, or Continuing Requirement	Estimated Cost	Individual(s) Responsible
Expand And Improve Administrative Computing Services				
7.	Establishment of Technology Life Cycle Funding Procedures	Short Term	Replacement costs estimated at \$150,000 annually	President/Board of Trustees
8.	Complete the initiatives taken for Admissions and Records, Financial Aid, Billing and Receivables, and Human Resources.	Continuing	\$271, 241**	Chief Information Technology Officer
9.	Complete Y2K software corrections and updates to include desktop computers	Short Term	\$30,000	Chief Information Technology Officer
10.	Develop a campus-wide secure access solution	Short Term	\$62,000 (CNE Hire)	
Expand And Improve Academic Computing Services				
11.	Enhancement of Faculty Network Connection And Dial-Up Connection	Intermediate	\$63,150 (SCT Web Access for Faculty)*	Chief Information Technology Officer
12.	Assignment of Faculty Member E-mail Accounts	Short Term	No Additional Cost	Chief Information Technology Officer
13.	Establish help desks for Administrative Computing and Academic Computing	Intermediate	\$56,000 (Student Assistants and PC Technician)	Administrative/ Academic Computing Directors
Increase The Quality Of And Access To Information - Total Campus Access				
14.	Network all classrooms	Long Term	\$150,000	Chief Information Technology Officer
15.	Network Student Dormitories and Rooms	Short Term Long Term	\$76,000 (Bldgs) \$1,200,000 (rooms)	Chief Information Technology Officer

	Recommendation	Short, Intermediate, Long Term, or Continuing Requirement	Estimated Cost	Individual(s) Responsible
16.	Make computer labs more accessible to students	Short Term	\$40,000 (Student Assistants)	Deans of respective Colleges and Schools
17.	Provide student e-mail accounts	Short Term	No Additional Costs	Chief Information Technology Officer
18.	Increase the number of computer classrooms	Continuing	\$465,000*	Deans of respective Colleges and Schools
19.	Upgrade the library computerization and access	Continuing	\$1,600,000*	Director of Library
20.	Standardize networking protocols.	Intermediate	Possible Cost Savings	Chief Information Technology Officer
21.	Standardize hardware platforms	Short Term	No Additional Costs - Possible Savings	Chief Information Technology Officer
22.	Standardize the software applications	Short Term	No Additional Costs - Possible Savings	Chief Information Technology Officer
23.	Make investments in technology improvements as we renovate and build new facilities	Continuing	No Additional Costs	President/ Chief Information Technology Officer
Enhance The Student Experience From Recruitment To Alumni Status				
24.	Develop the ability to enable prospective students to apply to the University and seek financial assistance electronically and more specifically using the Internet.	Short Term	\$74,480 (SCT Web Access for Students)*	Chief Information Technology Officer
25.	Allow current students to learn about class offerings, campus events and check on final grades using the Internet	Short Term	SCT Web Access for Students*	Chief Information Technology Officer

	Recommendation	Short, Intermediate, Long Term, or Continuing Requirement	Estimated Cost	Individual(s) Responsible
26.	Facilitate alumni to access their records and stay in touch via e-mail or the web pages	Intermediate	\$65,000 SCT Web Access for Alumni	Chief Information Technology Officer
27.	Develop a procedure for student purchase of a personal computer through the University.	Short Term	No Additional Costs	Auxiliary Services
Increase Distance Education Capabilities				
28.	Provide faculty training for distance education courses	Intermediate	No Additional Costs - Part of Academic Computing	Chief Information Technology Officer
29.	Provide support personnel for distance education courses	Intermediate	\$65,000 (Director and Support)	Chief Information Technology Officer
30.	Involve faculty members distance education planning	Short Term	No Additional Costs	Vice President of Academic Affairs, Deans
31.	Encourage the Development of Web Based Courses	Short Term	No Additional Costs	Vice President of Academic Affairs
Provide Technology Training				
32.	The Academic Computing Directorate should provide training in the standard University software applications and distance education	Continuing	\$15,000 (Costs for Training the Trainer)	Chief Information Technology Officer
	Total Costs***		\$2,524,000***	

*Costs have been included in Table 7.1

**Funding included in current budget

***Does not include costs in Table 7.1 or in current budget.

Note: Total Estimated Costs of Table 7.1 (\$4,691,854) and Table 7.2 (\$2,524,000) is \$7,215,854

Appendix 1

The following survey was used to determine the present state of technology resources and utilization. Members of the Technology Subcommittee collected the data.

Computer Technology Survey

I. Faculty

1. Number and types of Computers available to faculty

486 computers _____

Pentium computers _____

Macintosh computers _____

2. To meet your faculty's present and near term needs how many computers need to be purchased?

Pentium computers _____

Macintosh computers _____

3. What types of software applications are used by your faculty? (check all boxes that are applicable)

Word Processing

Database

Spreadsheet

Statistical Programs (SPSS etc.)

Scientific Programs

Multimedia Programs (Toolbook, Authorware, HyperText, HyperStudio etc.)

Other (Please list below)

4. What types of software needs to be purchased to meet your current and projected needs?

5. Does your faculty have network access (e-mail, Internet etc. Check all boxes that are applicable)

- From computer laboratory
- From personal computer in office
- From a departmental computer
- From a specialized workroom in a nearby area
- No network access
- Currently installing network access

6. Are there plans to improve the status of network access?

7. What training programs have your faculty had on the use of computers

8. Does your faculty use instructional technology in their classes? (Presentation Applications, Multimedia, Hypermedia, specialized software, CD-ROM texts, etc.)

- No use
- Very little use
- Some use
- Widely used

9. Does your faculty have access to a printer

- From a printer in a laboratory
- From personal printer in an office
- From a departmental printer
- From a specialized workroom in a nearby area
- No printer access

Students

1. Number and Types of Computers available to students

486 computers _____

Pentium computers _____

Macintosh computers _____

2. To meet your students' present and near term needs how many computers need to be purchased?

Pentium computers _____

Macintosh computers _____

3. What types of software applications are used? (check all boxes that are applicable)

Word Processing

Database

Spreadsheet

Remedial Programs

Educational Programs (non-remedial)

Statistical Programs (SPSS etc.)

Scientific Programs

Multimedia Programs (Toolbook, Authorware, HyperText, HyperStudio etc.)

Other (Please list below)

4. What types of software needs to be purchased to meet your current and projected needs?

5. Do your students have network access (e-mail, Internet etc. Check all boxes that are applicable)?

From computer laboratory

From a departmental computer

From a specialized workroom in a nearby area

No network access

6. Are your students issued an e-mail account? No _____ Yes _____

7. Are there plans to improve the status of network access?

8. Are course(s) in computer technology and use required in yours students' undergraduate programs? No_____Yes_____Some programs but not all_____

9. Are course(s) in computer technology and use required in your students' graduate programs? No_____
_____Yes_____Some programs but not all_____

10. Do your students have access to a printer

- From a printer in a laboratory
- From personal printer in an office
- From a departmental printer
- From a specialized workroom in a nearby area
- No printer access

Appendix 2

The following survey was used to determine specific faculty and staff technology requirements

Department/Area _____

The purpose of this survey is to determine the hardware, software, and training needs of the faculty and staff at Alabama State University. Please take a moment to complete the survey and return it to the SACS Technology Subcommittee member in your department.

1) What technology do you need in your department? (computers, printers, fax, etc. ..)

- Desktop Computers Scanner Digital Camera OCR Other
 Printers Fax Photo Copier Graphics

2) What software is needed in your department?

- Word Processing Web Creation Spreadsheet Statistical Analysis (SPSS)
 Network Browsing Multimedia Presentation (PowerPoint) other

3) Please provide an estimate of the funds needed for your department's software budget?

Immediately _____ Yearly _____

- Less than 50,000 Less than 50,000
 More than 50,000 More than 50,000

4) Please provide an estimate of the funds needed for your department's hardware budget

Immediately _____ Yearly _____

- Less than 20,000 Less than 50,000
 More than 20,000 More than 50,000

5) Who do you call when you encounter a technical problem? Is your problem fixed promptly?

- Yes No
 MIS Department Secretary Colleague
 Student Assistant Technology Specialist 800 Number

6) How do you get your supplies (floppy disk, printer paper, toner, etc.)?

Personal Funding Department funding Other Sources

7) Do you need any computer training? If yes, in which of the following areas?

General Use of Computer Power Point Microsoft Office Other (specify)

INTERNET Training WordPerfect Spreadsheet

8) Please check all that apply to your Computer Experience

_____ No Experience	_____ Internet
_____ Beginning Experience	_____ Creating Web pages with HTML
_____ Programming	_____ Desktop Publishing
_____ Word Processing	_____ Computer Slide Presentations
_____ Spreadsheets	_____ Multimedia Development Software
_____ Databases	_____ Statistics
_____ Electronic Mail	_____ Other (please describe)

9) Computers I have experience with:

_____ IBM/DOS _____ Windows
 _____ Macintosh _____ Others (please describe)

10) Rank applications according to your desire or need to learn (1 is the highest priority)

_____ Word Processing	_____ Computer Slide Presentations
_____ Spreadsheets	_____ Internet and On-line Services
_____ Databases	_____ HORNET (Library Services at ASU)
_____ Multimedia Development Software	_____ Hyper Text Mark-up Language (HTML)
_____ Desktop Publishing	_____ Other (other describe)

11) Rank the ways you would like to use computer technology (1 is the highest priority)

_____ Conducting original research with on-line services
 _____ Collaborating with colleagues through e-mail or on-line forums
 _____ Writing scholarly papers using word processing
 _____ Developing material with multimedia tools
 _____ Maintaining records using spreadsheets
 _____ Making presentations with computer slides
 _____ Creating Web Pages
 _____ Others (please describe)

12) Please list any recommendations you have for support of current and future technology labs

Office of Academic Tech Other
 Full Time Technology Support Staff

13) Please list any needs for all current and future classrooms

- Portable Technology Multimedia Platforms Projection Device
 Internet Access Printers Electric Whiten Boards

14) Please list any needs for current and future faculty and staff offices

- Desktop Technology Printers
 Internet Access Multimedia Platforms

15) Please list any needs for all current and future student facilities

- Desktop Technology Printers
 Internet Access Multimedia Platforms

16) Does your department have policies and procedures in place for scheduled software updates?

- Yes No

Suggestions: _____

17) Does your department have procedures in place for replacing obsolete computer equipment?

- Yes No

Suggestions: _____

Appendix 3

The following survey was used to determine specific student technology requirements

**ALABAMA STATE UNIVERSITY
STUDENT SURVEY**

1. Demographic Information

- a. Gender: _____ Male _____ Female b. Age: _____ Yrs.
- c. Major: _____ Business _____ Education (Elementary) _____ Science
 _____ Music _____ Education (Secondary)
- d. Classification: _____ FR _____ So _____ JR _____ SR _____ Grad
- e. Date of Expected Graduation: _____
- f. How many hours/week do you work on a PC? _____ < 1 _____ < 1-5 _____ 5-10 _____ >10hrs
- g. Do you own a PC? _____ Yes _____ No; If yes: _____ Windows or _____ Macintosh

II. Please indicate your response by circling 1 to 5 below.

1 _____ 2 _____ 3 _____ 4 _____ 5

**Strongly
Agree**

**Neither Agree
Nor Disagree**

**Strongly
Disagree**

1. PC Skills are very important in today's job market.	1 2 3 4 5
2. The PC facilities in ASU are adequate	1 2 3 4 5
3. Ownership of PCs should be mandatory for all majors.	1 2 3 4 5
4. Ownership of PCs will improve q student's ability to master computer skills.	1 2 3 4 5
5. Ownership of a PC will improve my performance in all courses.	1 2 3 4 5

III. Please indicate your response by circling 1 to 5 below.

1. ASU has adequate technology facilities to support all majors in all colleges staff to assist students	1 2 3 4 5
2. ASU has adequate technology support staff to assist students.	1 2 3 4 5
3. ASU technology labs have excellent hours to support student needs.	1 2 3 4 5
4. ASU technology labs have the most current software.	1 2 3 4 5
5. ASU technology labs include the latest equipment.	1 2 3 4 5
6. All ASU technology labs support use of Internet Resources.	1 2 3 4 5

IV. Please rank-order [I (most favorite) through 4 (least favored) the following options for purchasing a PC:

Students should buy PCs on their own.	
ASU should arrange discounts with vendors and students should pay on their own.	
ASU should arrange discounts with vendors and also provide loan program (Loan to be paid back in four years).	
ASU should provide computers and adjust tuition accordingly	

**PLAN
FOR
UPGRADING OF COMPUTING FACILITIES**

COLLEGE OF BUSINESS ADMINISTRATION

Introduction

Computers and Telecommunications are transforming the educational system across the United States. Keeping pace with the rapid changes in technology has been a major challenge for all educational institutions. The recent drastic reductions in educational budgets have made this task even more difficult. The College of Business at Alabama State University could, a few years back, proudly boast of being the early adopters of modern computer technology. We were then, at least a generation ahead of other universities such as AUM, Auburn and the University of Alabama. However, over the last two years we have fallen behind our peer institutions. We were till recently saddled with obsolete 486 PCs which could not run modern-day 32-bit software such as Windows-95. We still use the legacy 3270 dumb terminals for teaching CIS classes, equipment that should have been replaced at least 5 years back. The requirements of COBA are detailed next (after a brief review of the progress achieved during AY 97-98).

Progress During AY 97-98.

After two years of virtually zero funding, we were able to upgrade some of the facilities during the AY 97-98. The funds were provided by Title III and the Master of Accountancy Program. The equipment purchased during the year were:

1. 18 Pentium 166 MHz computers for faculty use.
2. 35 Pentium II-233 MHz computers for student labs
3. 15 Pentium II-233 MHz computers for the Masters of Accountancy lab.

Requirements

1. Furniture: The present computer lab furniture has been in the lab since 1978. We have not changed or replaced but a few desks since that date. We are in dire need of new ergonomically efficient desks and chairs for the computer labs.

2. Lab for Teaching CIS 205: The College of Business is assigned the responsibility of teaching *Introduction to Computer Information Systems (CIS 205)* to all majors in the University. On an average, about 325 students enroll in this course every semester. We run 11 sections of this course every semester with an average strength of 30 students/class. Some of the morning sections of the course have as many as 39 students. The eleven sections of the course itself justify an earmarked computer lab [33 hours (11 x 3) per week of computer lab for the class itself].

An earmarked laboratory with 35 new personal computers is required for teaching CIS 205. This lab can be used by the student during the weekends. The computers for this lab were procured during AY 97-98.

3. Lab for CIS Majors: The College offers a B.S. with concentration in Computer Information Systems. This program, in the past, was focused on the mainframe and we had an earmarked lab (Room-107) with 15-IBM

terminals for supporting the CIS program. With the paradigm shift in computer technology, the focus of the CIS program has also shifted toward newer technology such as Client-Server, WWW, Telecommunications and Networking. We have however not upgraded our CIS lab which still consist of legacy IBM 3270 dumb-terminals.

Scrapping this lab and providing a new lab for CIS majors with 30 new intelligent terminals (PCs with connectivity software) is one of our urgent requirements.

4. Lab for the Masters of Accountancy Program: The College of Business is starting a new Masters of Accountancy program beginning from Fall 98. To support this program, we need a dedicated multimedia lab with 30 new PCs and necessary data projection systems. Fifteen new PCs for this lab were procured during AY 97-98.

5. Portable Multimedia Systems: To improve the written and verbal communication skills, it has been made mandatory for students to write a 10-page paper and make a multimedia presentation in every COBA class. To facilitate these multimedia presentations, the college has two portable multimedia equipment which are carried from classroom to classroom. *We need another six of such equipment to increase the use of multimedia in the classroom.*

6. Upgrading the COBA Server: All computers in COBA are networked over a token-ring LAN which has Internet access. The COBA has a presence on the WWW and we would like to increase the use of Internet in the classroom. The existing server on our LAN is a Pentium 100 MHz computer which is grossly inadequate for the needs of the students and faculty. *We need to upgrade the Server.*

7. Networking: The College of Business was recently wired and a new hub provided. The new hub has only 60 active connections while our requirements in COBA is 250. The Hub has to augmented to meet our requirements.

8. Distance Education Laboratory: To support the mission of COBA and to help the community at large it is desirable to develop a Distance Education Laboratory in the College of Business Administration. Funding for this proposal has been requested in the Budget for AY 98-99. The proposal for this project has been placed in Annexure A.

Existing Facilities

The existing facilities along with our requirements are detailed below:

Room 106

Twenty Gateway Pentiums II-233 MHz with multimedia capabilities (New).

The Plan

Description	Numbers	Unit Price	Total Cost
I. Personal Computers with 400 MHz Pentium II processor with 512 k Cache 128 MB of SDRAM 17" color monitor 8.4 GB Hard Drive Sound Blaster Card and Boston Acoustics Speakers Token Ring Card 8 MB Video Card 24 X CD-ROM With Microsoft Windows 95	45 (30+15)	\$ 3000	\$ 135,000
II. Mail and Communication Server 2 Pentium Pro 200 MHz Processors 512 MB of FPM DRAM 15" Color Monitor 4-4.2 GB SCSI RAID Drives Tape Back-up Unit Token-ring Card	1	\$ 15,000	\$ 15,000
III. Portable Multimedia System Pentium II 400 MHz CPU 36" Monitor 8.4 GB Hard Drive DVD-ROM Drive 56 KB Modem high-fidelity Sound System Token Ring Card Wireless keyboard and mouse MS Office	6	5000	\$ 30,000
Sub-Total			\$ 180,000

The Plan *(continued)*

Description	Numbers	Unit Price	Total Cost
IV. 36" Display Monitors for Computer Labs	3	\$ 3000	\$ 9,000
V. Sony VPH-G70Q Multi Scan Projectors for multimedia classrooms	3	\$ 20,000	\$ 60,000
VI. 10 additional connectors for the COBA=s Hub.	10	\$ 2,500	\$ 25,000
VII. Furniture (Desks and Chairs) for the computer labs.	100	\$ 500	\$ 50,000
VIII. Distance Education Lab (See Attached Annexure for details)	1	\$ 2,50,000	\$ 250,000
IX. Software License (SPSS, Office, Front Page, Oracle, Cobol for PCs, PeachTree etc.).	1	\$ 20,000	\$ 20,000
X. Network Printers for computer labs	4	\$ 4,000	\$ 16,000
Sub-Total			\$ 430,000
Total from Previous page			\$ 180,000
Grand Total			\$ 610,000

**Equipment Purchase for AY/ 1998-1999
College of Business Administration**

Proposal for a New Distance Education Laboratory in the College of Business

The proposed lab will require the following:

1. 2 Sony VPH-G70 Multiscan Projectors @ 20,000 each	\$040,000
2. 25 Desktop terminals @ \$2,500 each	\$125,000
3. One heavy-duty Server with high-speed (T3) Internet access	\$015,000
4. Acoustic-Lighting/Seating arrangements in two rooms	\$010,000
5. 2- Motorized Screens	\$002,000
6. 4- 36" Display Monitors @ \$ 3000 each	\$012,000
7. Digital Cameras -2 Nos	\$002,000
8. Professional Video Cameras -4 Nos	\$006,000
9. Cabling work	\$020,000
10. Sundry and Miscellaneous items including software	\$018,000
 Total Estimated Cost	 \$250,000

**PLAN
FOR
UPGRADING OF COMPUTING FACILITIES**

THE COLLEGE OF ARTS AND SCIENCES

CURRENT AND FUTURE COMPUTING NEEDS OF THE COLLEGE OF ARTS AND SCIENCES

Educational institutions are influenced by societal events, more so by the advancement in technology. There is no doubt that the afford ability, availability and capabilities of computers have and still play a major role in this transformation. The exponential growth of knowledge places a shift from memorizing information to accessing information. Vast sources of databases and information on the network clearly outclass the holdings of any library. Successful university research often depends on substantial use of sophisticated and powerful information technology. Isolated and static classroom environments are giving way to dynamic ones. Authors of textbooks are overcoming traditional barriers and are producing software, which incorporate interaction with the reader. Texts are being supplemented by sights and sounds. Simulation programs permit students to perform dangerous or expensive experiments that cannot be carried out in real time. In short, technology is enhancing classroom activities thereby stimulating the learning process.

The sweeping change is not limited to educational institutions. Developments in the workplace and international competition are forcing employers to seek employees who are technology and information literate. Emphases are being placed on information access, problem solving, analysis, evaluation, and decision-making abilities of interviewees. In fact, some employers request and conduct interviews online. A cost-saving strategy. The current educational delivery system does not meet all the needs of the employers and students and private businesses have begun to see profit potential in offering short, inexpensive market-specific training that appears to be highly relevant to students. The training directly competes with traditional college programs.

Demands for enhanced classrooms that use technology are growing. To keep pace with present trend, it is that to important to improve substantially the productivity and quality of teaching and learning by designing, developing, and integrating current technology into the existing educational curriculum. The integration will provide an effective strategy for creating a learning environment that will attract, motivate, and maximize the potential of individuals. While instructors will retain control over content, standard, design and assessment of student learning and they will give up the control of delivery of information, thereby attaining the role of information guide instead of information provider. To accomplish these objectives, measures that will have to be taken include the following;

1. The upgrade of existing facilities.
2. The establishment of more multimedia classrooms and computer laboratories.
3. The provision of computers to faculty members.
4. The training of faculty members.
5. The development and integration of technology into existing curriculum.

The existing facilities and future needs of each department of the College of Arts and Sciences are given below. The facilities are given in terms of equipment available to students in computer laboratories and that available to faculty members. There are presently two multimedia

classrooms in the Department of Biology and the Department of Mathematics, Computer Science and Physical Sciences.

AVAILABLE FACILITIES & PROJECTED NEEDS

Department of Art

Technology lab

7 Macs (not networked)
1 Laser Printer
1 Scanner

Faculty

None

Multimedia Classroom

None

Projected needs

Upgrade or replace present computers with ones having multimedia and networking capabilities.

Network existing computers

8 Computers with networking capabilities
1 Teacher Unit
1 Color Laser Printer
6 Computers for faculty
2 Printers for faculty

Department of Biology

Technology lab

3 133 MHz Pentiums (not networked / all have network cards)
2 Macs (not networked 1 one has networking capabilities)
1 HP Printer
2 Laser Writers

Faculty

4 486 100Mhz (3 are networked)
1 200Mhz Pentium (networked)
4 HP Printers

Multimedia Classroom

One.

Projected needs

Department of Communications Media

Technology lab

12 Macs (not networked)
Laser Writers

Faculty

5 Macs
1 Laser writer

Multimedia Classroom

None

Projected needs

30 computers with networking capabilities
15 computers for faculty
2 Laser printers

Department of Criminal Justice

Technology lab

None

Faculty

1 Pentium
1 486
1 286
2 Dot matrix printers

Multimedia Classroom

None

Projected needs

8-10 networked computer lab for use by about 300 students
1 networked printer
1 scanner
1 copier
At least one multimedia classroom
The upgrade or replacement of 286 and 486 faculty computers with ones having multimedia and networking capabilities. 2 printers for faculty use

Department of History and Social Sciences

Technology lab

13 IBM 386, one IBM 486 server

Faculty

5 Pentiums

Multimedia Classroom None

Projected needs

Department of English, Foreign Languages, Philosophy, Speech, and Theater

Technology lab

None

Faculty

None

Multimedia Classroom

None

Projected needs

Need computer for each faculty (19) and a computer lab.

Department of Mathematics, Computer Science, and Physical Science

Technology laboratory

2 Sun stations (networked)

15 Pentiums (networked)

3 386's

2 Printers

1 Bed Scanner

1 Copier

Faculty

11 Pentiums (10 are networked' 1 by dial-up)

3 486's

4 386's

2 Scanners

7 HP Printers

1 Bubble Jet Printer

2 Dot matrix Printers

3 Bed Scanners

Multimedia Classroom

One.

Projected needs

At least 10 multimedia computers with networking capabilities for faculty.

At least 5 printers for faculty use.

At least 10 multimedia computers with networking capabilities for student use in the technical laboratory.

At least 10 computers with interfaces for use in experimental laboratories.

1 scanner for faculty use.

Department of Social Work

Technology lab

None

Faculty

2 Pentiums

Multimedia Classroom

None

Projected needs

TRAINING OF FACULTY

There are enough faculty members in the College of Arts and Sciences, especially in the Department of Mathematics, Computer Science, and Physical Sciences with the technical knowledge, to assist in the training of other faculty members of the college. At the present time, there are no established plans about the procedure to use in training the faculty members, but when the need arises, a plan will be formulated which may consist of workshops, one-to-one assistance, or a combination of both. Assistance will also be provided in the development and integration of technology into existing curriculum.

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**PLAN
FOR
UPGRADING OF COMPUTING FACILITIES**

THE SCHOOL OF MUSIC

**CURRENT AND FUTURE COMPUTING NEEDS OF
THE SCHOOL OF MUSIC**

Although the School of Music is well equipped with individual computers for faculty, and a nine station computer lab for student use, most software programs are over five years old. The School of Music plans to upgrade all software and add additional memory to all computers. It is our goal to provide improved instruction by using the most current and innovative software, such as Finale 98, Smart Music System, Master Tracks, etc. In addition, two practice rooms should be equipped the latest in technology including a with a MIDI workstation and a practice accompaniment program. These two improvements will greatly benefit our students.

To keep pace with advances in technology and competing universities, these goals must be achieved. Additional plans for the cost of training students and faculty, maintenance, purchasing consumables, and investigating a distance learning program within the School of Music can be met with a budget of approximately \$30,000.

**PLAN
FOR
UPGRADING OF COMPUTING FACILITIES**

UNIVERSITY LIBRARY AND LEARNING RESOURCES

University Library and Learning Resources
Alabama State University
Technology Plan

Goal: To move toward the "virtual library" meaning a library which accesses information in various formats in an interactive seamless manner, including print, media and electronic resources. The intent will be to provide access to and delivery of information to meet the needs of our library patrons as part of a totally connected campus whether this information is located within the physical confines of the library or available from remote access points.

Basic Needs Assessment: All equipment purchase should be Z39.50 compliant

Priorities: See Needs Assessment Priority Levels:

Year 1:

- 1.1 Build Infrastructure:
Wiring and cabling of building in support of computerization of the library
- 1.2 Must haves for a library wired for the future:
 - Feature Rich Lobby
 - Multi-media Room
 - Telecommunications Rooms
 - Video-Conference Capable Community room
 - Adding Additional Drops
 - Surge Protectors
 - Additional Phone Lines
 - Full Facility Data Grid
 - Flexible Collection Display Spaces
 - Multi-level Surge Protection
 - Power
 - Telecommunications System
- 1.3 Features for flexibility in wiring will include
 - Local/long distance expansion provision
 - easy access to telecommunications room
 - large capacity protected power supply
 - output center or room
 - a data grid
- 1.4 Physical Layout of Scholar Workstation and Staff Workstations

2. INTERNET Node Capability

As a prerequisite for accessing external databases, the University must be committed to the establishment of the node at Alabama State University within the 1994-95 academic year.
3. Ability to Search Other Library Holdings: Planing Initiated
 - 3.1 PACLINK
 - INTERNET node
 - PC's for downloading text to desktop
 - networking of PC workstations
 - wiring (as outline above)
 - Ability to access campus main frame from PC's
 - GOPHER Access including Screen Design for Patron Searchers
4. Implementation of a Local Area Network:
 - 4.1 Check GTO

LAN Equipment

 - Server
 - Software(ability to access OCLC, NOTIS interchangeably);
NOVELL software purchase for LAN
 - Network Hardware(including PC's, adapters, token rings, connectors, etc., network printers)
 - ATM Boards
 - Upgrade OCLC Controller (Network Capability)
5. Provide network capabilities for CD-ROM reference products
 - 5.1 CD-ROM network
 - CD-ROM Server
 - CD-ROM Software
6. Tie in to Campus Backbone
 - 6.1 ATM Back Bone

Campus Wide Area Network

 - Intelligent HUB (see wiring above)
 - Fiber optic Cabling with connection to Campus backbone
7. Document Delivery:
 - 7.1
 - Purchase of Commercial Document Delivery System (UMI, Information Access Corp.)
 - Purchase PACLOAN system Evaluate (NOTIS generated ILL re quest

over the INTERNET)

8. Software Purchase: Administrative for LAN and Patron Access
 - FTP Capabilities From WEB Page (Will Enhance PACLOAN)
 - Load Administrative Packages and Presentation Packages on LAN
 - Patron Access CD-ROM products
 - Patron Access Multimedia products (In lab and on workstations in Public Services)

9. Single Work Stations for Patrons and Staff
 - Single access to CD-Rom products for patrons
 - Single access to CD-ROM products for librarians for the product review

Year Two:

1. Infrastructure Continued:
 - 1.1 Multilevel Surge Protection
 - 1.1.1 Power Supply Upgrade
 - 1.2 Telephone/Telecommunications Enhancement

2. LMS (Library Management System)/NOTIS
 - 2.1 Purchase Authority Records for enhanced public access In House [see 4]
 - 2.2 Purchase statistical package for report generation
 - 2.3 LMS Access VIA Home page In process

3. Information Retrieval Services
 - 3.1 Installation of the CD-ROM Network
 - 3.1.1 Purchase of CD-Rom Network Hardware Continuous Additional Drives
 - 3.1.2 Purchase PCs for CD-Rom Access on going
 - 3.1.3 Purchase of Network Printers on going
 - 3.2 CD-ROM Software on going
 - 3.2.1 CD-ROM Licenses on going
 - 3.2.2 CD-ROM Gateway Software for Access
 - 3.3 Online Database Access on going

4. Document Delivery: Implemented
 - 4.1 Fax Server
 - 4.2 Document Delivery Service
 - 4.3 PACLOAN

- 5. Furniture Supporting New Technologies
 - 5.1 PC Workstation Furniture on going
 - 5.1.1 Security Devices for PCs
 - 5.2 Printer stands for Network Printers
- 6. Staff
 - 6.1 Microcomputer Systems Technician
 - 6.2 Systems Librarian
 - 6.3 Student Assistants (Technicians) on going
 - 6.4 LAB Manager
 - 6.5 Training
- 7. Contract Maintenance
 - 7.1 LMS contract on going
 - 7.2 PACLINK (client and server)
 - 7.3 GTO contract
 - 7.4 DIALOG
 - 7.5 MISC Information retrieval contracts

Year 3 to 5:

- 1. Software: Information Retrieval
 - 1.1 Purchase Additional Software (upgrades, network licensing of software obtained; ongoing)
 - 1.2 Purchase of InFoShare system products: Loading of tapes onto NOTIS systems for accessing external information databases from desktop rather than from separate CD-ROM service (based on selection policies in library)
- 2. Upgrade NOTIS system
 - 2.1 Purchase enhancement of system: NOTIS Horizon
 - 2.1.1 - PC workstation
 - 2.1.2 - INTERNET connections
 - 2.1.3 - Print form workstations
 - Bar code scanners for PCs in Tech Services
 - Purchase new LMS system

Implement

- Electronic Reserves and Serials Subsystem
- Digitizing
 - Server
 - Software
 - E.D. Nixon Collection
 - Thesis

INTERNET Publishing

**PLAN
FOR
UPGRADING OF COMPUTING FACILITIES**

**ACADEMIC
ASSISTANCE CENTERS
OF THE
UNIVERSITY COLLEGE**

ACQUISITION OF COMPUTERS FOR THE ACADEMIC ASSISTANCE CENTERS

Introduction

University College is the home college, or college of entry for all undergraduates enrolling at Alabama State University for the first time. The purpose of University College is to further the goals and objectives of Alabama State University by providing a quality program of general collegiate education which meets the needs of students at different levels of ability and academic preparation (*The General Undergraduate Catalog, 1997 - 99*).

To that end, the three programmatic objectives of University College as an academic unit are as follows:

- 0 To offer students a basic program of general studies and prerequisite courses for advancement to degree-granting colleges;
- 1 To make available to students academic services designed to promote the development of those skills and competencies required for success in collegiate studies; and
- 2 To provide students with academic advisement services that will maximize retention and promote successful achievement in college.

Justification of Computer Acquisitions: The Academic Assistance (Tutorial) Centers

The Academic Assistance Centers

In order to meet programmatic objective two (2), University College operates four (4) academic assistance, or tutorial facilities. These four facilities are designed, in terms of supplemental materials and holdings, specialization of personnel, equipment needs and operating modes, to best match specific disciplinary courses and meet student needs. The following table is a listing of the four academic assistance centers, the disciplinary specializations, center director and campus location.

Academic Assistance Center:	Location:	Disciplinary Specialization:	Director:
The Reading Center	PH 219	Mandatory academic intervention for students who, on the basis of the placement instrument for reading (the Nelson-Denny Test) are referred to receive tutoring on specifically diagnosed skill weaknesses. Tutorial sessions are primarily one-on-one with a tutor.	BRACY, Acquanetta
The Writing Center	PH 143	Academic assistance for students in the developmental English courses (mandatory); students from upper-division English courses (currently voluntary); BWCT and GWCT candidates (voluntary) also receive tutorial assistance. Tutorial sessions are primarily one-on one with a tutor.	HARDEN-LUSTER, Leola
The Mathematics and Science Center	PH 132	Academic assistance for students in developmental (mandatory) and college-level (currently voluntary) math courses and biology. Recently, personnel have been hired that have backgrounds in chemistry and physical sciences, thus expanding the tutorial expertise available to students. Tutorial sessions are primarily one-on one with a tutor.	MORRIS, Lorena
The History/Geography Center	PH 139	Academic assistance for students in college-level history and geography courses (currently voluntary). Tutorial sessions are primarily one-on one with a tutor.	HAMBRICK, Albert

The Diagnosis/Referral System of Academic Assistance

Currently, the only students that attend academic assistance centers in a mandatory format are students enrolled in developmental courses. However, certain trends and practices have led to the conclusion that students enrolled in our college-level courses, too, could benefit from a structured system of pre-testing and diagnosis, followed by referral and mandatory, structured academic assistance. The concerns leading to the development of the diagnosis/referral system are as follows:

- X There exists a high course repetition rate among some college-level courses [English (131, 132) = 40%; Mathematics (133, 134) = 65%; History (131, 132) = 30%].
- X Incoming students are earning lower college-level grades despite level to higher entrance exam scores (ACT, SAT).
- X English Proficiency Examination (EPE) passing rates have dropped steadily since 1990.

According to the diagnosis/referral concept, every college-level course in University College will have a parallel academic assistance component, to be facilitated through the tutorial centers as necessary. Each course (ENG 131, 132; MAT 133, 134; HIS 131, 132, GEO 206; BIO 127, 128) will involve a pre-test (administered day one-two) comprised of critical skill competencies, which will be used to devise algorithms that can predict the students= probability of successfully completing the course (at 70%) on the basis of the skill competencies demonstrated. After analysis of pre-test result, if competency levels fall below the predictor range of 70%, the student will be referred to the discipline-specific academic assistance center. Customized academic assistance will be administered on the basis of the specific critical skills to be addressed. This assistance will be based upon computerized, repetitive skill building, with follow up and reinforcement with a one-on-one tutorial session. Mandatory details (no. of times/week the student must attend; percentage of critical skill competencies mastered in the tutorial session/center, etc.) Will be listed in the syllabus of each course.

Conceptually, we are confident that this is a plausible system to employ. It is already used to some extent in the testing and placement of students in the developmental courses. However, rather than allow students to regress to lower course levels, structured academic intervention will be implemented immediately and specifically to address those demonstrated critical skill competencies that the student lacks, thus increasing the students= likelihood to move successfully through the course. We feel that the diagnosis/referral system is an excellent paradigm for interfacing academic assistance with a college-level curriculum in order to decrease course repetition and other negative outcomes. Substantive analyses will be performed, including pre-test/post comparisons, tutorial visitation/final grade, re-enrollment of students into the same courses (pre/post), and other analytically pertinent parameters. Each academic assistance center directory will be trained in a statistical program that will be commonly used within the program. Hopefully, this novel system will serve as a source of educational research, grantsmanship and publication.

**University College
Hardware, Software, and Training Needs**

Hardware Needs	Software Needs	Training Needs
<ul style="list-style-type: none"> • 60 Faculty and Workstations • 10 laptops for graphic use in mathematics • 15 laptops with built in LCD projection capabilities • 10 LCD projectors for classroom use in conjunction with laptops • Multimedia Classroom with 25 workstations • Printers for faculty, administrative support and labs 	<ul style="list-style-type: none"> • 15 copies of the Statistical Package for the Social Sciences (SPSS) • Word-processing, and spreadsheet, and presentation software for all computers • Internet and networking software • Specialized software for coursework. 	<ul style="list-style-type: none"> • Basic office training (word processing, spreadsheet, and presentation) • Windows Training • Graphics training for presentations • Internet/web page creation and editing

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**PLAN
FOR
UPGRADING OF COMPUTING FACILITIES**

COLLEGE OF EDUCATION

Rationale and Recommendations for Integrating Technology in College of Education Professional Studies Courses

Introduction

The guiding principle for the rationale and recommendations in this document is that when faculty and students in teacher education programs have adequate access to a range of technology for teaching and learning, the result is better prepared, forward-looking educators. The goal is for inservice and preservice teachers who participate in College of Education programs to accept technology challenges, integrate a variety of technology into teaching, and provide K-12 learners with skills and abilities to apply information and knowledge in solving real world problems (Alan November, 1997).

This document will cite current research in educational technology to ensure that the rationale and recommendations offered are grounded in sound scholarship and practice. To accomplish this, a brief background of University programs will be provided; faculty experiences and current uses of technology will be described; faculty and student technology needs will be discussed; and recommendations for immediate and future technology integration will be made.

Background

All students entering Alabama State University as freshmen, or as transfer students with fewer than 30 transfer hours, begin their course of studies in University College. University College provides all students, regardless of intended major, with core courses that address knowledge and skills in areas common to undergraduate programs in all degree-granting units. Required core courses are selected from the following areas: English Composition, Speech,

Logical Reasoning, Physical hotness, Mathematics and Computer Literacy, Natural and-Physical Sciences, Social and Behavioral Sciences, and Humanities. Before declaring a major, all University College students also enroll in two one-credit courses designated as Orientation.

The College of Education has a variety of degree programs leading to K-12 certification. Those programs result in Bachelor of Science in Education, Master of Education, Master of Science, and Education Specialist. A Master of Science in General Counseling, which does not result in school certification, is also offered.

Areas of certification

A Bachelor of Science in Education is offered in Early Childhood, Elementary Education, Biology Education, Business and Office Education, Office Administration, English Education, History Education, Language Arts, Mathematics, Psychology, Social Science, Special Education, Health, Physical Education, and Music Education. Presently, 700 students are enrolled in undergraduate programs in the College of Education.

Graduate degree programs include Master of Education, Master of Science, and Education Specialist. Current graduate students are working on certification in Administration and Supervision of Schools, Biology Education, Early Childhood Education, Elementary Education, English Education, Health Education, History Education, Library Education Media, Mathematics Education, Special Education, Music Education, Physical Education, School Counseling, and General Counseling. There are 425 students currently enrolled in graduate degree programs leading to certification in the above areas.

Professional studies courses common to all arena

Once undergraduate students have been admitted into the College of Education, a number of courses taken are common to many areas of certification. At the undergraduate level the

following are required in most major content and skill areas: CIS 205-Introduction to Computer Information Systems, EDU 300-Foundations of Education, EDU 301-Measurement and Evaluation in Education, EDU 400-Psychology of Learning, LEM 321-Instructional Technology for Educators, and SED 201-Introduction to Special Education. These courses represent areas in which integrating technology into preservice education could begin in an effort to reach preservice educators early in their professional studies courses and teacher preparation experiences.

At the Graduate level the following courses are requirements across most areas of certification: EDU 504The Elementary School Curriculum; EDU 511-Statistical Techniques; Research and Evaluation; EDU 512-Educational Research; EDU 527-Human Development and Behavior; EDU 531-Modern Issues in Education; EDU 541-Advanced Educational Psychology; EDU 574 Computer-Based Instructional Technology; and SED 574The Exceptional Child. These advanced education courses, common to students seeking additional teacher certification, are courses in which first steps for integrating technology into inservice education courses might begin. Doing so would provide practicing educators with on-going experiences using technology to support various areas of teaching and learning. Research indicates that staff development through inservice programs, including advanced degree programs, is a major tool for implementing educational change (Moursund, Bielfeldt, Ricketts and Underwood, 1995).

The Governor's Council on Technology Education recently stated that efforts will be made to "ensure that all teachers are trained in how to use the technologies available to them" (Alabama *Technology Plan for K-12 Education*, 1996, p. xi). This charge from the State makes it imperative that the College of Education put forth an effort to prepare preservice and inservice educators in using current technologies for teaching and learning.

Faculty Experiences Using Technology

There is a demonstrated interest by College of Education faculty members to learn uses of current technology for management, productivity, research, and instruction, even though a majority of faculty members indicated they have little or no prior experience using technology for personal or professional productivity. A general survey at the beginning of the 1997-98 academic year resulted in twenty-six faculty members expressing an interest in participating in faculty technology preparation seminars.

By the end of the Fall 1997 semester, the majority of College of Education faculty members will have acquired experiences and skills using technology by participating in technology development seminars on several productivity tools, Internet access software, a database program to view student records, a gradebook utility, and evaluation and integration of educational software.

Present Technology Uses in COE Courses

As recommended by leading technology-using educators, all preservice and inservice education programs need to include using and modeling technology for teaching and learning (Pryor & Bitter, 1995-96; Brown & Henscheid, 1997; Knapp & Glenn, 1996). At ASU uses of technology for teaching and learning are demonstrated primarily by professors of instructional technology and media-- LEM 321 at the undergraduate level, and EDU 574, EDU 575, EDU 576 at the graduate level. However, a few content area specialists have integrated technology into required course activities. Evidence that technology integration has begun is seen in the areas of Science Methods, Business Education, and General Counseling. It is important to note that several College of Education professors suggest, but do not require evidence of technology use

by students for research and writing. These professors need to move beyond suggesting and into modeling technology for teaching and learning in their areas of expertise.

It appears that most other faculty members in the College of Education are not presently using technology for instructional purposes. The lack of technology use may be attributed to technology anxiety, lack of preparation, and lack of adequate access to current instructional technology. A limited number of faculty members have desktop computers with printers or access to on-line resources, i.e., Internet, and ERIC. In addition, most classrooms used by College of Education faculty have only a chalkboard and overhead projector, making the use of advanced technology during instruction difficult. The *Alabama Technology Plan for K-12 Education* (1996) calls for all K-12 schools to be wired and fully technology ready by 1999. Since K-12 educators are prepared at Alabama State University, it seems reasonable to expect that college facilities would be adequate to present preservice and inservice educators with opportunities to see technology use modeled, and with experiences to practice technology integration.

College of Education Faculty Needs

As previously mentioned, most Alabama State University College of Education faculty lack experiences and preparation with current technologies available for teaching and learning. With that in mind, several broad areas of needs have been identified by the College of Education Technology and Media Committee during meetings held in the Fall 1997 semester. Those areas of need include faculty technology preparation and technical support, curriculum revision, desktop technology with software applications, and on-going budget support. In addition, numerous routine faculty tasks and responsibilities will likely become easier and more efficiently completed once access to adequate technology is available to faculty members.

Faculty Technology Preparation and Support

The use of hands-on workshops as a first step in faculty technology preparation is consistent with what research in technology integration for teacher education programs indicates is sound practice (Pryor & Bitter, 1995-96; Brown & Henscheid, 1997; Knapp & Glenn, 1996). Accordingly, twenty-six College of Education faculty members participated in a series of hands-on workshops to gain experiences using Windows microcomputers, Windows95 operating system, and several productivity applications including Microsoft Word, Power point, and Netscape Navigator. Faculty members also participated in hands-on seminars learning Access to view a student advisement database designed to assist in evaluating student progress for completing degree requirements. Finally, faculty participated in hands-on seminars for evaluating content area software and discussing ways to integrate technology into various areas of specialization leading to certification.

Faculty technology preparation took place in an educational technology setting not shared with students. Continuing to provide such a relaxed, non-threatening environment for learning new technologies on an as-needed basis will likely result in faculty more comfortable with taking risks to update technology skills. Pryor and Bitter (1995-96) note that on-going workshops and seminars are necessary in order to provide faculty with opportunities to continue developing materials, gaining experiences with new technologies, and/or refining individual technology skills. This means faculty require on-going access to a variety of current technologies in a comfortable non-threatening environment with extensive technical and moral support (Russell, 1996).

Faculty are likely to need assistance from permanent full-time technicians and teaching assistant as they work in a faculty technology development lab and/or in their of flees with desktop technology (Russell, 1996). A possible alternative to full-time technical personnel is the use of technology mentors identified to assist novice technology-using teacher educators on an as-needed basis (MacArthur, Pilato, Kercher, Peterson, Malouf, & Jamison, 1995). College of Education faculty who participate in technology preparation may act as mentors for others in their college or other colleges and degree-granting units of the University. Mentors are not meant as replacements for needed technical support personnel, but rather as personal guides to assist colleagues in pedagogical and managerial issues of technology integration. Other universities have used a one-on-one collaboration model to successfully prepare and support education faculty as they work toward integrating technology in teacher education (Zachariades, Jensen, Thompson, 1995).

Curriculum Revision

Brown and Henscheid (1997) recommend that models of successful technology integration be included in all teacher education programs at the undergraduate and graduate levels to prepare present and future educators for teaching in tomorrow's schools. Encouraging a curriculum committee to actively examine common goals for technology integration in undergraduate and graduate courses (e.g., word processing for all major writing assignments, presentation software for lectures and demonstrations, communications software for research and collaboration, and content related software for modeling technology integration for micro-teaching and internships) would provide professors with guidelines for technology inclusion in their various areas.

Restructuring the curriculum to include available technologies places a high demand on

faculty time. It is imperative then, that faculty have access to a range of materials to remain current in their field, as well as experiment with newer methods and materials to adequately prepare present and future educators (DeWert & Heining-Boynton, 1997; Riedl, 1995). Faculty need an environment that is welcoming, pleasant, and not shared with administrators, students, or support staff in order to encourage and support experimentation with technology as a tool for teaching.

Desktop Technology and Software Applications

As the College of Education moves toward obtaining technology for professors' of flees and making access to technology in all classrooms a reality, there is a need for faculty and students to have access to an educational software library. Software categories included in a proposed library should include:

- § word processing database application
- § electronic spreadsheet or grade book program
- § presentation software page layout with graphics
- § multimedia development tools
- § resume templates
- § statistical analysis software
- § a variety of K-12 content related software-- drill, practice, simulation, tutorials, problem-solving, and interactive stories.

Any or all of these categories of software could be used in a variety of ways, from writing research, to evaluating instructional uses of software and modeling exemplary classroom practice. Faculty members must also have knowledge of technology and non-technology resources available for course integration at the university library and other sites.

Finally, providing all faculty members with e-mail accounts that may be used directly from campus offices and from home offices through dial-up, will allow for rapid communication with students, administrators, support staff, and colleagues; opportunities to research on-line materials and other university libraries; and more active collaboration with colleagues at other universities. Schlagal, Trathen and Blanton (1996) discuss the importance of using electronic mail as a means to overcome limitations of distance and time in working with preservice educators. These educational researchers noted that practice teachers and university professors were able to maintain important links with students and their classrooms, and engage in meaningful exchanges regarding educational pedagogy and classroom management. Such instructional conversations may help prospective classroom teachers think critically about complex issues involved in education.

On-going Budget Support

Previously mentioned recommendations for College of Education technology integration require adequate and on-going line items in university, college, and departmental budgets for materials and supplies (Pryor and Bitter, 199596; Knapp & Glenn, 1996). Technology for teaching and learning is not a one-time or sometime investment. For technology integration to be successful at all levels of teaching and learning, university administration must fully support the efforts of College of Education faculty with adequate budgets.

Key faculty tasks improved with technology

There are numerous ways that adequate access to technology can improve faculty tasks and responsibilities currently done with limited technologies. Some of the enhancements of these tasks and responsibilities include:

- § using gradebook programs to facilitate rapid and accurate record keeping

accessing ASU student database of courses and grades (read only) to streamline academic advising participating in on-line registration and academic advisement

- § creating and editing student handouts
- § updating course syllabi on a frequent basis
- § preparing weekly tests and final exams
- § creating dynamic overheads and multimedia lecture materials
- § obtaining information rapidly from libraries and other electronic sources
- § completing research and writing for publication
- § collaborating with colleagues-- local, regional, national, international
- § composing and sending memos to colleagues, administrators, support

staff,

and students.

Undergraduate and graduate student needs

Planning for technology integration in core courses taught in University College is warranted to allow undergraduate students to become knowledgeable about and comfortable with using various technologies early in their college programs. Integrating technology uses in upper level undergraduate and graduate courses offered in the College of Education is also justified to ensure on-going preparation and opportunities for success in using technology. A few areas where technology may benefit teaching and learning include making electronic presentations, writing compositions, editing term papers and research projects, brainstorming in collaborative groups, conducting library research, and using software aligned to content areas for test preparation. Also, many routine tasks and responsibilities associated with being a student (noted in the next section) will also benefit from access to adequate technology and software

applications.

Beginning freshmen need introductory technology courses to prepare them for using electronic tools and current technology which are rapidly becoming job-related requirements. Necessary technology skills common across content and skill areas include keyboarding, writing with word processing, creating electronic presentations, using e-mail, and searching on-line databases.

Students also need to see technology modeled in all content areas at the undergraduate and graduate levels (DeWert & Heining-Boynton, 1997). Until technology is fully integrated into all professional studies courses, students should be required to enroll in instructional technology courses designed to prepare them to evaluate and use a variety of technologies. Undergraduates in teacher education programs need courses and experiences in technology beyond the basics provided in CIS 205-Introduction to Computer Information Systems and LEM 321-Instructional Technology for Educators. Graduate students also need a variety of technology experiences. Taking all three graduate technology courses-- EDU 574, 575, 576-- may help ensure that inservice teachers receiving advanced degrees in education are adequately prepared to meet the challenge of using current instructional technologies.

Eventually, all professional studies courses in the College of Education must include technology as a part of the methods, materials, and objectives. For such a goal to be successful there is a need for students to be familiar with library, technology and writing resources; learn in technology rich classrooms; have access to student technology labs with consistent licensed software; pay close attention to course prerequisites and sequence to build on skills; be provided with work study experiences in technology labs; have help from permanent full-time assistants in all labs; be able to contact permanent full-time technicians in all labs; and have access to current

software, Internet, email, and supplies in technology labs open 24 hours a day.

Key Student tasks enhanced with technology

Some student tasks and responsibilities that may be positively affected by access to adequate technology include:

- § participating in registration and academic advisement
- § researching and writing in all courses
- § tracking their own grades
- § accepting responsibility for their progress on degree requirements
- § communicating with professors and classmates
- § creating materials for presentations, micro-teaching, and student teaching activities

Making access to these and other technology resources may assist future teachers as they become self-reliant thinkers, and life-long learners (Riedl, 1995).

Recommendations for technology integration

Some initial steps for integrating technology in teacher education courses have begun, i.e., presenting a series of faculty technology development seminars for College of Education faculty. However, to successfully implement campus-wide technology integration, the University needs to take additional steps.

Initial steps toward technology integration

Steps for continuing to move toward integration of technology in professional studies courses in the College of Education recommended by the College of Education Technology and Media Committee include

1. preparing all university faculty in use of productivity software applications

2. providing all faculty and students with electronic mail accounts
3. requiring freshmen technology, writing, and library orientation through the required Orientation 101 & 102 sequence
4. building a library of productivity and learning software
4. designing technology components or assignments and follow up activities for all courses beginning in University College
6. requiring library and electronic media uses in all College of Education courses
7. modeling technology use in College of Education courses where meaningful and appropriate

Software categories recommended for course uses

The College of Education Technology and Media Committee recommend building a software library with the following categories of software: word processing titles commonly used in K-12 schools; presentation utilities, such as PowerPoint; a variety of database programs; spreadsheet and gradebook creation utilities; Internet browsers-- Netscape; drawing and photo editing; web creation software, authoring utilities and hypermedia tools; keyboarding applications; templates of resumes and professional letters; statistical analysis software-- SPSS and SAS; and two-way interactive teleconferencing software such as Net meeting or CU-See-Me.

Access to software in the above categories may assist professors and students as they restructure the learning environment to allow for more active participation and collaboration as students construct personal meaning in various required courses. It will also allow professors to restructure courses to allow for more varied presentations to hold students' attention, giving rise to including what Royal Van Horn (1997) describes as high-quality teaching episodes-- a Web moment, media moment, instant science-- created with presentation software.

Course requirements where technology may fit

In order to help students become independent learners who are more actively involved in courses and more engaged in using higher order thinking skills, i.e., analysis, synthesis, and evaluation, Williams (1997) suggests a need for alternative learning environments. The creation of alternative learning environments requires a transformation in how power in the classroom is constructed.

College of Education students and professors should be collaborating throughout the semester to ensure that activities are engaging, meaningful, and transferable to the K-12 teaching environment. Building on Williams' suggestion (1996), students enrolled in professional studies courses need to be actively involved in constructing their own learning. Integrating the use of current technologies in the areas of research, writing, presentations, micro-teaching demonstrations, and telecommunications-- e-mail, news groups, list serves, web sites-- may provide the necessary means for students to participate in constructing their own learning.

Future steps to support successful technology integration

After the previously mentioned initial steps have been successfully implemented, the College of Education Technology and Media Committee suggests the need for

1. designing and presenting on-going technology seminars to allow professors to refine technology skills
2. providing all offices and classrooms with access to Internet
3. furnishing all classrooms with electronic podiums
4. obtaining electronic whiteboards for classroom use Each of these initiatives will ensure

that present and future educators earning teacher education certification from Alabama State University will have ample exposure to and myriad experiences with using current technologies for teaching and learning.

Conclusion

As demonstrated by current educational research in teacher education and technology integration, when faculty and students have access to a range of technologies for teaching and learning, the result is well prepared inservice and preservice teachers. This document has attempted to apply the insights of theory and practice to the Teacher Education programs at Alabama State University.

**College of Education
Hardware, Software, and Training Needs**

Hardware Needs	Software Needs	Training Needs
<ul style="list-style-type: none"> • Replace the 35 IBM compatible computers in room 536 of the Library and provide them with Internet and network access. • Replace the 25 Macintosh computers in room 546 of the Library and provide them with Internet and network access. • Replace the 15 computers in the Office Education program. • Provide 10 computer systems and printers to the remaining College of Education faculty members that do not have desktop computers. • Three portable multimedia systems are needed to increase the use of multimedia in the classroom. • Network the multimedia classroom in Rm. 325 of Council Hall. 	<ul style="list-style-type: none"> • 5 copies of the Statistical Package for the Social Sciences (SPSS) • Word-processing, and spreadsheet, and presentation software for all computers • Internet and networking software • Specialized software for coursework. 	<ul style="list-style-type: none"> • Basic office training (word processing, spreadsheet, and presentation) • Windows Training • Graphics training for presentations • Internet/web page creation and editing

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**PLAN
FOR
UPGRADING OF COMPUTING FACILITIES**

HEALTH SCIENCES

November 1998

Technology Plan

1. The Health Science programs at Alabama State University (ASU) have reaped the benefits of careful planning to implement the federal court order (Knight v. Alabama, 1981). Insightful budgeting has included the provision for technology in each program. By continuing to focus on planning for continued state-of-the-art technology, the Health Science programs will efficiently and effectively utilize technology for education of students, faculty and support staff. By doing so, the reputation of the programs will grow so that ASU is top choice for students education, faculty and staff employment. Technology will serve as one bridge to more effective communication, for greater understanding between people from diverse backgrounds.

Satisfying the need for a specialized academic computing center at ASU through a possible "Academic Computing Center" will ensure faculty and their immediate support staff are capable and have access to state-of-the-art technology to further their academic mission. Because of the size of ASU, one central "Academic Computing Center will best centralize the expertise and provide for faculty economical and ready access to the needed resources.

Executive Summary: ASU Health Science

Technology Plan

The Health Science programs at Alabama State University (ASU) have reaped the benefits of careful planning to implement the federal court order (Knight v. Alabama, 1981). Insightful budgeting has included the provision for technology in each program. By continuing to focus on planning for continued state-of-the-art technology, the Health Science programs will efficiently and effectively utilize technology for education of students, faculty and support staff. By doing so, the reputation of the programs will grow so that ASU is top choice for students education, faculty and staff employment. Technology will serve as one bridge to more effective communication, for greater understanding between people from diverse backgrounds.

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Health Science Programs

Technology Plan

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Introduction

The Health Science programs at Alabama State University are developing as a result of the federal court case Knight v. Alabama. As an outcome of this case, Alabama State University has been ordered to develop attractive programs, such as Health Information Management (HIM), Occupational Therapy (OT) and Physical Therapy (PT). The funding to develop of these programs is mandated by the federal court. The Office of Health Science began operations in 1997 with the goal to recruit faculty for the respective Health Science programs, and begin the steps necessary prior to admitting students.

The Growing Health Science The first faculty began in the Health Science programs in August and September 1997. At that time, funds were obligated to ensure each faculty member and support staff in the Health Science be equipped with up-to-date computer support. As new faculty and staff are added, new equipment is purchased. This ensures that equipment is current when the faculty receive it.

The Role of Information Technology in Higher Education Information technology is the use of equipment and supplies to process, store, retrieve and share knowledge. The technology can be as simple as an instructor talking to a group of students with the aid of paper handouts, and chalkboard. State-of-the-art information technology may employ a variety of technologies, including: Internet access, computer simulations, information storage and retrieval systems, and two-way television for distance learning. Exposure and training the faculty and staff to efficiently and effectively choose and utilize the many technologies for the best educational outcome is an ongoing academic and budgetary concern.

The Challenges Facing ASU Health Science Continued growth of the Health Science programs necessitates ongoing recruitment of highly qualified faculty who may have specific requirements for specialized technology. Adequately budgeting for these difficult to predict possibilities is a challenge. A high level of satisfaction with technology availability and support is vital to attract and maintain quality faculty.

Student access to state-of-the-art technology during both didactic and clinical components of education is vital to build the reputation of the Health Science programs, facilitate placement and success of students in high quality clinical placements.

Access, training and support for technology use by support staff, clinical faculty, adjunct faculty will greatly increase productivity and efficiency. Optimization of technology throughout the programs should assist in effective long term cost containment and high quality education. Initial and ongoing investments in state-of-the-art technology, instruction and support services are necessary budgetary items for each department. In some instances the instruction and support required will surpass the capacity of the university at that time, mechanisms for outside vendors for these services will be utilized.

Vision

The Health Science programs will efficiently and effectively utilize technology for education of students, faculty and support staff. By doing so, the reputation of the programs will grow so that ASU is top choice for students education, faculty and staff employment. Technology will serve as one bridge to more effective communication, for greater understanding between people from diverse backgrounds.

Developing the Technology Perspective A baseline understanding of the importance of technology in the present and future of the Health Science programs is important so that faculty, staff and students can appreciate its value. Ongoing educational opportunities for the faculty, staff and students are important to expose each individual to possibilities of technology, and respect the current level of knowledge and learning style.

ASU's Health Science Technology in the Year 2003 and Beyond Planning is necessary to efficiently utilize resources and maintain state-of-the-art technology for each of the health science programs. Each program has a unique health care perspective, and will require technology that is discipline specific. At the same time, administrative needs, and some basic instructional needs for each program are similar. Sharing training resources and expertise for these similar administrative and training needs in an ongoing process. As the departments grow, additional emphasis on maintaining and building on the existing teamwork will be necessary.

Goals

The long range technology goal for the Health Science programs is to achieve and support maintained state of the art technology access, training and support for academic faculty, support personnel, students, clinical faculty and adjunct faculty.

Academic Faculty Access, Training and Support In order to attract and support high quality faculty, technology must be tailored to the individual interests and needs of the faculty, while balancing the need for transportable document formats. That is, individual faculty members will no doubt often have personal preferences, and interests in specific hardware and software, which may vary from the university and department standards. Limited support for unique programs may be available through the university. Options include

Adjunct Faculty Access, Training and Support The important role of clinical instructors and other adjunct faculty must be carefully considered and budgeted to ensure efficient and effective communication between all faculty, and students. Healthcare trends such as increased home based care, cost containment and increased specialization of practitioners make recruitment of adjunct faculty more problematic. At the same time reliance on adjunct faculty for specific areas of expertise and supervision of students during clinical training are paramount for the success of the programs. Adjunct faculty will benefit from access to faculty through technology such as, electronic mail, library services, and distance learning (video conference, Internet courses). The

health science programs are in the unique position to attract and enhance the expertise and accessibility of adjunct faculty by training and assisting with access to technology. Providing technology access and training which is efficient and effective in light of adjunct faculty time, talent and budget limitations will provide outstanding clinical education programs. The clinical coordinators and department chairs will need to carefully negotiate the many possibilities available at that time to attract these outstanding clinical sites.

Support Personnel Access, Training and Support Secretaries, coordinators, student workers and other support personnel require adequate technology access to efficiently handle documents, access university programs, prepare special documents, assist faculty in preparing instructional audiovisuals, process and interchange documents.

Student Access, Training and Support Students require state of the art access, training and support in multiple technologies to prepare for technology they will need to utilize in the workforce, prepare assignments (documents and audiovisuals), reap the benefits of distance learning, and communicate effectively with faculty and other students regardless of location.

Internal Assessment

1. Reasonable Components. Components of a reasonable technology infrastructure for the health science programs include word processing and audiovisual capabilities (*such as Microsoft PowerPoint* and other graphics handling hardware and software) to enhance the program development and educational mission of the departments. The growing faculty will need support for scholarly works to include publishing and presentations, in addition to support for developing ongoing teaching responsibilities.
2. Current System: The current technology inventory of the Health Science programs at ASU includes only one computer from before September 1997. Thus for practical purposes the bulk of the technology is categorized as acquired in FY 98.
3. Gap Analysis: Present to Future: The future technology needs for the Health Science will continue to utilize state-of-the-art technology to meet the needs of the individual health science disciplines. The occupation of the Health Science building will provide an opportunity to rotate out much of the current equipment.

Hardware and software updates will be necessary to ensure the technology remains state-of-the-art. This will entail a thorough, up-to-date inventory of the Health Science technology assets, and monitoring of upgrades to ensure all users are maintained at the optimum level.

Support services will need to be budgeted to ensure support for academic and support service needs. Specialized clinical hardware and software will need support which would unduly tax the university's already busy support personnel. The increasing number of faculty will result

in increasing need for training. Additionally, student work stations (computer labs) will require support.

4. Sequence of Events: Contingency plans to ensure the prompt replacement of outdated hardware in FY 2001 are necessary in the event construction of the new Health Science building falls seriously behind schedule. In either event, plan to replace the computer hardware will need to be financed for FY 2001.

Update of computer software in FY 99 and FY 2000 will entail an update of Microsoft Windows for approximately 50 workstations, an upgrade of Microsoft Office for approximately 45 workstations, and Microsoft Word and PowerPoint for six workstations. Additional software upgrades for will need to be budgeted for items such as scanners.

5. Timetable: At this time (Oct 98), the HIM computer lab, and the Health Science student study area are having 15 and 6 computers installed respectively. This will allow for some expansion of the educational programs. The new Health Science building is scheduled for occupancy by the end of CY 2000; this building will receive primarily new technology, including hardware and software. That hardware will then need to be scheduled for update in FY 2004. Ongoing software updates will be budgeted each year.

Conclusion

Prior planning of the Health Science programs to include budget for technology has enabled the current high availability of technology to faculty. Technology is being incorporated into the educational programs for students in each program. Student access to technology is coming on-line as the programs start. Increasing student, faculty and staff access will continue to require attention to needs of individuals and groups. This will require continued innovation and creativity to ensure the programs offer state-of-the-art technology education and access.

Health Sciences
Hardware, Software, Technical Support and Training Needs

	Hardware Needs	Software Needs	Technical Support Needs	Training Needs
FY 1999	<ul style="list-style-type: none"> • Additional Faculty and Student Lab Needs ~ 10 Workstations • Complete HIM Lab (15 stations, instructor and server) • Additional video projectors for additional classes 	<ul style="list-style-type: none"> • Upgrade Windows and Office products 	<ul style="list-style-type: none"> • Email and Internet access support • Assist with HIM Lab • Scanner support • Printer Support • Windows and office support 	<ul style="list-style-type: none"> • Basic office training (word processing and power point) • Windows Training • Graphics training for presentations • Internet/web page creation and editing
FY 2000	<ul style="list-style-type: none"> • Replace FY 1997 ~ 8 Workstations • Color printer for presentations 	<ul style="list-style-type: none"> • Upgrade Windows and Office products • Upgrade graphics capability for instructors desiring 	<ul style="list-style-type: none"> • Oversee new building • Email and Internet access support • Assist with HIM Lab • Scanner support • Printer Support • Windows and office support 	<ul style="list-style-type: none"> • Basic office training (word processing and power point) • Windows Training • Graphics training for presentations • Internet/web page creation and editing
FY 2001	<ul style="list-style-type: none"> • New workstations in new building: Faculty, administrative support and labs • Additional Scanners: 1 per suite plus labs = 9 • Printers for faculty, administrative support and labs 	<ul style="list-style-type: none"> • Software for all workstations in new building, current versions of: Windows and Microsoft Office 	<ul style="list-style-type: none"> • Complete Building Inspection and Trouble Shooting • Email and Internet access/use support • Assist with HIM Lab • Scanner support • Printer Support • Windows and office support 	<ul style="list-style-type: none"> • Basic office training (word processing and power point) • Windows Training • Graphics training for presentations • Advanced graphics and publishing • Internet/web page creation and editing