

# Information Technology Plan Report for July 2001 - July 2002

## 1. PCs

### Labs

There are 20 areas on campus where computers are grouped for student access.

Click [here](#) for description (updated May 2002)

The goal is to cycle at least two of these areas per year with new equipment and move PCs from labs to faculty/staff use when appropriate.

**Recommendations for this year:** Continue with the replacement cycle to refresh all lab PCs every three years. Click [here](#) to see the planned schedule.

**Long term goal:** Continue 3 year cycle for replacement, consider leasing again.

**Result:** 105 Dell OptiPlex Gx240 PCs were purchased in November 2001 to update equipment in 5 labs.

## Faculty/Staff Computers

All faculty and staff should have access to the college network, it's servers and the Internet, from PCs on their desks running Windows 98 or 2000.

All staff are standardized on the Microsoft Office Suite of applications.

**Recommendations for this year:** Keep faculty & staff on 3 year cycle for replacement. Currently in 1st year. New PCs were purchased for all faculty and staff in the spring of 2000. Click [here](#) for description.

**Long term goal:** Continue 3 year cycle for replacement. Consider Notebooks (again) in 2002, possibly wireless connections to network.

**Result:** One new Notebook was purchased for a staff member (Penny Summers) per a request.

## 2. Purchasing

### Procedure for Equipment Requests

Individuals complete an equipment request form showing quantity, description, cost, critical rating,

and justification that are distributed with budget information each spring. The requests are submitted to the supervisor for approval and should follow the chain of supervision up to the level of Division Chair (or appropriate Admin Council member). It is the Division Chair's (or Admin. Council member's) responsibility to summarize and prioritize these requests for his/her area using the "Summary of Equipment Requests" form.

Requests for desktop (ink or dot) printers or peripherals costing less than \$500 may be purchased out of supply budget money (301).

Instructional software for classroom use is purchased with departmental budgets and does not go to the team for consideration. It does require approval from the Director of Information Technology (or the computer center) to ensure compatibility.

**Recommendations for this year:** None

**Long term goal:** Electronic signatures for approval.

**Result:** [Click here for the request list submitted spring 2001.](#) [Requests for equipment are to be incorporated into the new 5 year plan.](#)

### 3. **Training**

Information Technology training is done at Spring and Fall conferences in addition to short courses from Continuing Education. The Professional Development team coordinates information technology training on campus.

**Recommendations for this year:** Hire person to do individual training with faculty and staff.

**Long term goal:** Move training away from these one day forums and spread sessions throughout semester.

**Result:** [Rebecca Rivas hired \(working under Jennie Redmond – Library Director\) to train faculty/staff in various software products.](#)

### 4. **Microcomputer Software**

The college has made an effort to standardize on the following operating systems and application programs. The goal here is create an environment where documents can be easily transferred campus wide. Using different word processors, email packages, spreadsheets, and databases between departments makes this goal nearly impossible to achieve. All software purchases require the approval of the Director of Information Technology. Software being purchased for instructional (classroom) use will be reviewed for compatibility with hardware and to prevent duplication only. Non instructional software

purchases that are not listed below must be approved by the administrative staff. An effort will be made to prevent departments from isolating themselves from the rest of the college by purchasing non-standard software for basic word processing, spreadsheet, and database functions.

## Desktop (standard software on most PCs listed below)

Windows 98 2nd Edition, Windows 2000 Professional  
Microsoft Office Pro 2000 (Includes Outlook email client and Frontpage)  
Norton Antivirus 7.5  
Browsers: Microsoft Explorer 5.5  
Netscape Communicator (on some PCs, at users request)  
Front View Terminal Emulation for Datatel and VAX

## Network (Operating systems and other non-instructional software on file servers)

Netware 4.11  
NT 4.0  
Windows 2000 Server  
File Maker Pro  
Library World, Library Net  
EDE Express (financial aid software)  
Norton AntiVirus  
SMS (Systems Management Server)  
HP WebJet Admin  
Visio  
Safari

Instructional software (~~click [here](#) to access the current database~~)

**Recommendations for this year:** None

## 5. Servers/Network Operating Systems/Server Software

### VAX/VMS

VAX 4000-500, 8.7 gig HD, 256meg RAM  
VMS version 6.2  
Clemson Administrative Software  
Diskeeper  
Multinet (TCP/IP)

### Novell Netware

Faid - 75Mhz Pentium, 1 gig HD, 128meg RAM Netware 4.11

## Microsoft NT Servers

Web Server – 500MHz Pentium III  
Merlin – Dual 300MHz Pentium II  
SMS - Dual 500MHz Pentium III  
PDC - 500 MHz Pentium III  
Exchange - 500MHz Pentium III  
HAL - 800MHz Pentium III Xeon  
Webct - 866MHz Pentium III Xeon  
Datatel - 500MHz dual Pentium III Xeon

## Storage and Print servers

Maxtor 80gig storage appliance  
HP4000 print server

**Recommendations for this year:** Replace Merlin and Datatel. Move Exchange to new server.

**Long term goal:** Move OCTC pages to HAL, continue to replace servers on 3 year cycle when possible.

**Result:** Replacement Dell 2650 servers purchased for Merlin, Datatel, and Web Server. Exchange moved to Gateway 7400r.

## 6. Backup Strategies

### Servers:

The VAX is backed up using a tape drive TF85, each tape has 6 gb capacity.  
The Netware server, FAID is backed up using Segate backup software to DAT (4-8gig capacity)  
The NT servers are backed up daily using Segate software to DLT tapes (25-50gig capacity).  
Merlin (NT) is a RAID 5 server with 3 hard disks. If any of these 3 fail, the server can continue to function.  
The other NT servers except for Dilbert, each have two disks with software mirroring enabled from NT.

**Recommendations for this year:** None

**Long term goal:** Consolidate all backup to auto loader.

**Result:** With Merlin and Datatel servers scheduled for replacement (both have DLT drives), most of the backup will be to the autoloader.

## Desktop:

Zip (100mb) floppy disks (1.44mb) and CD-RW drives (650mb) are being used for file backup at the desktop. Network storage is also available to every user.

Maxtor (NAS) Network Attached Storage 80Gig used for faculty/staff networked storage, backed up to tape each night.

**Recommendations for this year:** Replace Maxtor for fac/staff file backup and use Maxtor for student file storage.

**Result:** Maxtor (80gig) replaced with Snap Server (240gig). Ghost 7.5 being used for image backups. Some faculty (CPT) have purchased flash memory devices that plug into USB ports to transfer files.

## Labs:

Images are made of lab PCs using Drive Pro from PowerQuest and stored on the network, and/or CDs.

**Recommendations for this year:** None

**Long term goal:** Teach faculty how to restore labs PCs from image, and/or start using restore products mentioned above.

**Result:** Update to Ghost 7.5.

## 7. Telephony

System purchased in October 1993

Make: NEC

Model: NEAX 2400 IMS

Maximum # of extensions: 432

Stations in use: 240

Approved maintenance agreement until December 1999.

Maintenance Schedule of Agreements:

Dec 93 - Dec 94 Warranty

Dec 94 - Dec 95 First Year Maintenance

Dec 95 - Dec 96 Second Year Maintenance

Dec 96 - Dec 97 Third Year Maintenance

Dec 97 - Dec 98 Fourth Year Maintenance

Dec 98 - Dec 99 Fifth Year Maintenance

Upgrades implemented prior to 1999 should only occur if a major functional problem exists.

In the Fall of 2001 our truck lines were replaced with digital lines to reduce our overall cost.

**Recommendations for this year:** None

**Long term goal:** Implement a TCP/IP based phone system.

## 8. Network Infrastructure

### Wiring

Fiber extends (12 and 24 pair) from building B to nearly all buildings A, C, D, E, K, L, M, H, I, and N. There are over 600 category 5 twisted pair ports on campus.

### Switches

#### Core & edge:

There are 19 HP Procurve 10/100mb switches connected to the campus backbone that can support up to 80 ports each. 656 ports are currently available (as of May 2002)

### Terminal Servers

There is one 32 port and one 8 port terminal server (RS-232), connected to the campus backbone for a total of 40 ports.

### T1

There is one T1 line connected to the campus backbone that supports 768k for data and 768k for video conferencing.

**Recommendations for this year:** Implement VLANs. Upgrade Internet connection. Rewire K building.

**Long term goal:** All buildings are current with TIA/EIA standards for backbone and horizontal cable. All ports are 100mb to the desk with 1000mb connections from wiring closets.

**Result:** In November 2001 the college was upgraded to an ATM connection at 6mb. VLANs were fully implemented in February 2002. K building has been rewired.

## 9. Printing (Network/desktop)

Everyone should have access to a local printer either directly connected or close to their PC. A local printer can be defined as either a dot or ink printer costing less than \$300. In addition, everyone should have network access to a laser printer. In some cases where volume of printing is low, a connection to the networked laser printer may suffice.

### DOT Matrix

9 dot matrix printers are in use (updated February 2001)

### Ink Jet

95 HP Inkjet printers are in use (updated February 2001)

### Laser

There are currently 36 networked laser printers (click [here](#) for list) on campus and 12 stand alone laser printers (updated February 2001)

**Recommendations for this year:** Implement AIG for printing various forms.

**Long term goal:** Move more copiers to digital network print devices.

**Result:** **AIG fully implemented for printing.**

## 10. Copying/Scanning/Faxing

There are 6 Xerox 5845 copy machines and 2 Minolta 2050 copy machines on campus. All of these copiers are rented by the month. The Print Shop maintains a Xerox 5892 copy machine also rented in August of 1999.

**Recommendations for this year:** None

**Long term goal:** Integrate copiers into campus network.

**Result:** **No new progress this year on merging these functions into the network.**

## 11. Digital Cameras

A Polaroid PDC 700 digital camera is being used for photo Ids.

**Recommendations for this year:** Inventory these devices.

**Result:** **Not accomplished.**

## 12. Projection

The college uses a variety of projection devices, LCD panels, LCD projectors, scan converters and large screen monitors to make computer screens available to classroom audiences. It is our goal to use the most cost effective yet adequate method to deliver these screens. We have begun using the Gateway Destination PC for smaller classrooms which consists of a large screen monitor, wireless keyboard/mouse, and PC, instead of an LCD projector. We have stopped purchasing LCD Panels in favor of projectors.

## LCD Panels

There are four older panels on campus in the following locations:

D-203 and D-206 (they have been replaced with projectors and will be returned to the media center.)  
P-1205  
Library - Media (not being used)

## LCD Projectors

There are 11 of these on campus in the following locations:

K-124 Health Science  
D-201 Bus/CPT  
D-202 Bus/CPT  
D-203 Bus/CPT  
D-206 Bus/CPT  
C-119 CAD  
C-118 Lecture Room  
E-303  
N-1634 Continuing Education

2 available from Media Services in Building B for faculty presentations off campus and as backup.

## Large Screen PC (Gateway Destination)

There are 17 of these on campus, located in the following classrooms:

K-137 Health Sciences (networked P200, 32mb RAM, W95a, Z4303)  
K-138 History (networked P200 w/DVD, 32mb RAM, Win98, Z4638)  
K-126 Respiratory (networked P233 w/DVD, 32mb RAM, Win98, Z4636)  
K-117 MLT/MOA (networked P200 w/DVD, 32mb RAM, Win98, Z4639)  
K-145 Radiological (networked, PII233 w/DVD, 32mb RAM, Win98, Z4634)  
K-133 Health Sciences (networked, PII400 w/DVD, 32mb RAM, Win98, Z4777)

K-161	Health Sciences (networked, PII400 w/DVD, 32mb RAM, Win98, Z4778)
K-135	Health Sciences (networked, PII400 w/DVD, 32mb RAM, Win98, Z4779)
E-302	Accounting (networked, P200, 32mb RAM, Win98, Z4304)
L-1404	English (networked, PII233 w/DVD, 32mb RAM, Win95b, Z4403)
L-1420	AA/AS (networked, P200, 64mb RAM, Win98 2e, Z4302)
F-405	Bus/CPT (networked, P133, 32mb RAM, Win95a, Z3943)
E-306	Paralegal/Legal (networked, P200 w/DVD, 64mb RAM, Win98, Z4637)
E-308	Criminal Justice (networked, P200, 64mb RAM, Win98 2e, Z4301)
I-806	Automotive ( <u>not</u> networked, PII233 w/DVD, 32mb RAM, Win98, Z4635)
M-1518	Early Childhood (networked, PII400 w/DVD, 32mb RAM, Win98, Z4780)
F-401	AA/AS ( <u>not</u> networked, PII400 w/DVD, 32mb RAM, Win98, Z4781)

**Recommendations for this year:** Fill budget requests for additional projection with current IT funds.

**Long term goal:** Quality projection in all classrooms that require it. Replacement cycles of 3-5 years.

**Result:** **Several new projectors were added. Inventory is being completed.**

### 13. Administrative Software

Clemson software used by 7 other colleges to run billing, finance, student records, registration, etc. Uses DBMS (not relational database) and was written in COBOL. Data can only be queried by writing programs in COBOL. A new version was loaded in June 98 for year 2000 compliance.

12 of the 16 colleges began installing Datatel administrative software (Colleague v16) in January of 2000. The finance system went live summer 2000 with the student system scheduled for spring 2001. Click here to see information posted on the college intranet.

~~Click [here](#) to see local Datatel related pages.~~

**Recommendations for this year:** Bring Student system live in July 2001. Work on getting Safari reporting software functioning.

Long term goal: Implement Web Advisor product.

**Result:** **Student system went live for FALL 2001. Safari functional May 2002.**

### 14. Student Record Archiving

Files are maintained on all accepted, current, inactive and graduate students of OCTC. We currently store records in a paper format in five drawer file cabinets and an electronic file retriever system that will store an estimated 15,000 file folders. We serve in excess of 2,500 students per year and are in need of additional filing space. Microfilming is complete for students who have not been enrolled since 1988. We are reluctant to microfilm records for any shorter period of time due to the fact that many of our students return to school within a 5 to 10 year period and microfilming would result in a duplication of paper and filmed records.

An optical storage system was added in June 98. Software and hardware for this system was upgraded in June 2001. It currently uses mirrored 60gig hard disks for redundant storage.

**Recommendations for this year:** None

**Long term goal:** Move to Datatel partner (Bluebird) when affordable.

**Result:** No change.

## 15. Student ID system

The current software is called Polaroid ID Card Maker using a Polaroid PDC 700 digital camera to capture and send photos to a Polaroid-75 ID printer. Student ID cards are produced in the Media Services Department after the drop/add period each semester. Cards are then sent to student services where they are distributed to the students. Student services verifies that they are still registered and have paid fees. Student ID cards are taken in the Fall and Spring semesters.

**Recommendations for this year:** Continue using current system. Provide faculty and staff with ID cards.

**Long term goal:** Integrate system with Datatel admin software.

**Result:** Faculty and Staff were issued ID cards in the Fall of 2001.

## 16. Videodisc Based Systems

One touch screen Infowindow based system used in Health Sciences. IBM Model 60 (386) with videodisc player.

Pentium based system with touch screen, videodisc, mpeg card, CD-ROM, and sound (FITNE system) also located in Health Sciences.

**Recommendations for this year:** None

**Long term goal:**

**Result:** No change.

## 17. **Distance Learning**

The college has a VTEL Galaxy videoconferencing system connected to the TechNet backbone network for access to the other technical colleges. This system has been in place since 1996 and has been through several upgrades. A desktop (ELMO) based document camera is attached to the system along with a Sony presenter camera (aimed at the instructor). The lab seats 24 at 12 tables with 12 microphones connected to a wall mounted camera (Parker Vision) in the front of the room that has presets for each microphone. A VCR is also connected allowing video tapes to be shown or class sessions to be recorded. A connection from this room to Time-Warner Cable TV was added in July 98.

A second VTEL codec, another Galaxy system was added in the fall of 2000 to separate administrative sessions from the classroom system. It is located in the Library.

**Recommendations for this year:** None

**Long term goal:** Migrate these systems to IP video.

**Result:** Service contracts with Verizon continue to be maintained for both systems. The Library Galaxy has a IP connection now that is undergoing testing as part of a planned project with the other colleges. The goal is to move this system from H.320 to an H.323 connection.

## 18. **Internet & Email**

Current provider is Info Avenue (Rock Hill, SC), this is the state contract provider for Internet services.

Our connection to the Internet is currently at a full T1 (1.52).

DNS is provided by the VAX. Address translation is done at the firewall.

Email is on Exchange 5.5, client PCs use Outlook 2000. Norton AntiVirus for Exchange protects the server.

**Recommendations for this year:** Upgrade connection from T1 line. Move Exchange to a new server. Move DNS to NT.

**Long term goal:** Move email to Exchange 2000.

**Result:** Our connection to the Internet is now through an ATM pipe at 6mb. Exchange has been moved to a new server and DNS is now fully implemented on NT.

## 19. **Intranet** (available only on campus)

The college implemented an intranet in the Fall of '97 using Microsoft's Internet Information Server. It was developed by the Director of Information Technology and contains a variety of information. It can be accessed by typing [OCTC](#) as the http address.

The goal for this project is to reduce the overall amount of paper flowing on campus and to further enhance our ability to communicate.

**Recommendations for this year:** Continue to expand.

**Long term goal:** Move to a new server.

**Result:** Several new sections were added this year (Datatel Documentation, Human Resources, Business Office, Student Services, Adopt-A-Highway). A replacement server was purchased, June 02 and is being implemented.

## 20. **Security/Firewall**

The college implemented a CISCO firewall (PIX515) in February of 2001 to protect the network. NAT (network address translation) was also implemented at this time to further isolate our equipment from the outside.

**Recommendations for this year:** Continue to monitor activity and update firmware as

necessary.

**Long term goal:** Implement Intrusion Detection.

**Result:** No changes. Firmware is current.

## 21. Remote Access

The college has supported dial-up access to the network from off-campus for many years. In the Fall of 1999, the modem pool consisting of eight 33.6 USR modems was upgraded to a 24 line 3COM RAS 1500 box supporting 56k connections. 16 of the lines have been active since then by dialing a single number (535-1437) that cycles through the lines to find one available. In June of 2001 (this year) we added a Cisco VPN 3005 Concentrator box that allows encrypted connections to be made to the college network through an ISP (Internet Service Provider). This allows those living further away in Columbia or Charleston access to our network from their current provider without the need to make a long distance phone call.

**Recommendations for this year:** Expand use of VPN access

**Long term goal:** None

**Result:** Several users have been added to the VPN access list.