UNION COUNTY VOCATIONAL-TECHNICAL SCHOOLS
1776 RARITAN ROAD
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TECHNOLOGY PLAN

2004 - 2007

BOARD APPROVED: MARCH 22, 2004

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EXECUTIVE SUMMARY

Union County Vocational-Technical Schools mission is to address the needs of the residents of our county by providing technological opportunities to acquire the marketable skills necessary to enter into and compete in our challenging labor market as we enter the 21st Century. This mission is committed to ensuring high standards and challenging opportunities through the integration of academic and technical training and by:

- providing access to technology for all learners
- providing a strong emphasis on teacher professional development and pre-service education.
- creating an integration of technology into systematic school reforms

Our mission statement stresses the implementation of technology as a tool for learning; technology is an instrument to be used to expedite and enhance the learning process. We have designed our plan to break down the barriers of time, distance and form.

TECHNOLOGY INVENTORY

DISTRICT EQUIPMENT

With the planning of our new Vocational-Technical High School we have begun an updating of our existing 10/100 Ethernet backbone to a 10/100/1000 Ethernet backbone campus wide. This project began in the Spring of 2003 and will continue through the Fall of 2004. This update will significantly increase the bandwidth capability of our campus.

Being a member and lead agency for the Union County Internet Consortium for the past five years has enabled us to take advantage of high speed broadband for Internet access and the updating of our campus network will enable us to truly take advantage of this partnership.

The updating of our network is the first step in increasing our overall district bandwidth; there are still several other components to doing this. The first of which is the upgrading of the end user workstations. Without upgrading to 10/100/1000 network cards on our end stations, the updated switches will have no impact on overall speed. To address this we have included 10/100/1000 network cards as part of our standard build for new computers starting in the summer of 2002. This will enable us to convert our high use labs, including media centers and CADD labs by the Fall of 2004. The conversion of the rest of our campus will not occur until the fall of 2005.

As has been our practice since 1997, we have ordered new equipment for two to three computer labs each year. We will purchase high end machines for our CADD labs, and then redistribute the old CADD labs to other district labs. The order they are redistributed is based on use of the lab. For example the Humanities lab, for which the primary use is word processing, will have the oldest computers. The sciences and math labs usually receive the second generation computers.

Our current inventory of computers puts us at about 650. This includes all computer labs, office computers and laptops. With the creation of our new full-time high school, the overall district computer inventory will increase by 50 to 100 by the Fall of 2005.

DISTRICT SOFTWARE

Union County Vocational-Technical School district has been involved in the Microsoft Volume Licensing Program (MSVLP) for the past five years. Through this program we have joined other districts in the state to limit our cost per seat. This program provides us with the following software, including updates for use campus wide.

- Office 2003 Applications
- Office 2003 Suites
- Office XP Applications
- Office XP Suites

- MS Sequel Server 2002
- Windows Server 2003
- Windows XP Professional

Another district wide program is the AutoDesk Comprehensive Education Solution (ACES). This program entitles us to upgrades and unlimited usage campus wide of the following software programs.

- AutoCAD Release 2000
- Mechanical Desktop 2000
- Softdesk S8 Architectural
- Softdesk S8 AEC Tools
- Softdesk CAD Overlay r14
- Softdesk S8 Building Services
- Softdesk S8 Civil Survey
- AutoCAD Map r2
- 3D Studio Max

The final district wide program is Symantec's Norton Antivirus. Along with the software programs offered through MSVLP every district computer has this antivirus software loaded on it. The virus updates are distributed through one of our servers. In addition to the antivirus software we have recently set up a Microsoft Update Server. This server automatically updates our district computers with the latest MS critical updates and service packs. The combination of these two software packages enables us to keep our district computers virus free and up to date.

Another software package that affects the district as a whole, but is run separately from our network is Symantec's Enterprise Firewall. This software package runs on the Union County Internet Consortium's servers. Our connection to the Internet passes through this firewall and provides the necessary filtering required by both the state and federal government.

There are three levels of filtering offered to consortium members. Union County Vocational-Technical Schools utilizes minimum filtering; this includes everything EXCEPT - Racism, Satanic/Cult, Drugs, Sex Ed., Alcohol, Sports and search engines. The complete list of categories is as follows:

- Alcohol/Beer/Wine/Tobacco
- Drugs/Drug Culture
- Full Nudity
- Gross Depictions
- Militant/Extremist
- Partial Nudity
- Questionable/Illegal/Gambling
- Racism/Ethnic Impropriety

- Satanic/Cult
- Search Engines
- Sex Education
- Sexual Acts
- Sports
- Violence/Profanity

In addition to the software agreements we have district wide we also have various software agreements that are broken down into smaller quantities. Some of these agreements include Adobe Photoshop, Acrobat, Illustrator, Macromedia Dreamweaver, Quark, World in Motion, Interactive Physics, Geometric Sketchpad, Green Globs, etc.

Beyond the smaller agreements individual teachers also purchase programs specific to their field. These agreements are purchased through the individual programs, whereas the prior are purchased by the district.

TECHNOLOGY MAINTENANCE/SUPPORT

The following vendors are under contract to us for computer repair and troubleshooting. The majority of our repairs are handled in house; the following vendors are used on an emergency basis.

- Dell Computer Corp.
- Extreme Networks
- Link High Technologies, Inc.

The purchases of all district computers include three year warranties. After the three year period computers are maintained by district personnel. Once computers are no longer useful, they are either auctioned or discarded.

Other equipment including servers and switches are kept under warranty until there usefulness has ended. These warranties are for hardware only; all software issues are handled by district employees. The district has an agreement with Link High Technologies, Inc. to assist with issues beyond the scope of the technology team.

Union County Vocational-Technical Schools employs three full-time staff members who are responsible for all technology related responsibilities. The Coordinator of Technology is responsible for the maintenance and oversight of all technology requests, problems and growth district wide.

The Network Administrator is responsible for the day-to-day maintenance of our network, UCVTNet, as well as the maintenance of the peripherals attached to the network.

The third member is the ETTC coordinator. The ETTC coordinator is responsible for staff development and the infusion of new technologies and opportunities related to technology and curriculum.

In addition several students are employed on a part time basis during the school year and summer. Students from the junior and senior class are hired during the summer prior to their junior year and work until graduation.

As with all technology there comes a time when its usefulness becomes limited. As has been our practice since 1997, new equipment for two to three computer labs is ordered each year through capital funds, grants and Perkins funding. We purchase high end machines for our CADD labs, and then redistribute the old CADD labs to other district labs.

The order they are redistributed is based on use of the lab. For example the Humanities lab, for which the primary use is Word, will have the oldest computers. The sciences and math labs usually receive the second generation computers. UCVTS has been able to purchase new computers, recycling the old computers throughout the campus. These computers have been averaging a life of three to four years.

TELECOMMUNICATIONS SERVICES

In 1997 with the creation of our campus network we installed video over IP in our Magnet High School building. Since that time we have converted our entire district to video over IP. The conversion has simplified work from a maintenance side and has enabled us to have more control over the configuration and use of our telecommunications network.

FACILITIES INFRASTRUCTURE

UCVTS has just upgraded its infrastructure to a 10/100/1000 backbone utilizing both copper and fiber. This backbone is responsible for the distribution of our voice, video and data networks. The video network utilizes the Safari Technology Pathways software for video distribution to every classroom on campus.

Our data network provides every faculty member and full time student with e-mail and network space. The ability to share and exchange data has been extended to off campus with the recent addition of Microsoft Exchange Web Access.

The existing 10/100/1000 network infrastructure has provided us a firm backbone to use in expanding our campus network and providing our faculty and students with a top of the line network that will assist in making the utilization of today's technologies easy.

OTHER SERVICES

In addition to the services listed above, Union County Vocational-Technical Schools has the added luxury of housing the Union County Educational Technology Training Center (ETTC). The ETTC has provided training to district employees since its inception in 1997. The partnership with the ETTC has made it easy to provide up to date training to all district employees.

Employees have the option of attending scheduled workshops at the onsite training center or by attending the customized district workshops. The ability to install the latest in technology is only made successful by the complementing training that we require of all employees.

THREE YEAR GOALS AND OBJECTIVES

To be able to consider ourselves one of the leaders in educational technology, it is imperative that we see beyond today and do everything to prepare for the ever changing future. As has been proven in our previous technology plans, more important than setting goals, is achieving them. With that in mind the following is a listing of our reevaluated goals and projected timeline for 2004-07.

1. To provide continuous training for staff as new technologies evolve by providing semi-annual training district wide and continue to build a training relationship with the Union County ETTC (ongoing)

2. To incorporate our network access into the curricula for student use both on campus and at home (Fall 2005)

3. To provide fast, effective and seamless network backbone to assist in the exchange of information district wide (Ongoing)

4. To provide a centralized training center for use by students and the public in the technology fields, i.e. MOUS (Spring 2005) , A+, Cisco Certification and Oracle (Spring 2005)

5. To continue providing the latest software programs through agreements such as Microsoft's Volume Licensing Program and AutoDesk Comprehensive Education Solution (Ongoing)

6. To continue amassing educational technology resources through both the ETTC and our own in-district resources (Ongoing)

7. To continue to develop technology partnerships and collaborations with business and research organizations engaged in technology (Ongoing)

8. To continue requiring teachers, through their Professional Improvement Plans (PIP's), to develop lessons utilizing new instructional and/or assessment technologies. (Ongoing)

9. To increase the incorporation of dynamic geometry software, computer algebra, and statistics software into mathematics and science curricula. (Ongoing)

10. To enhance the infusion of computer technology into district mathematics and science curricula in support of New Jersey Core Curriculum Content Standards 4.5 and 5.1 by evaluating the feasibility of establishing a dedicated mathematics/science computer laboratory for use by all district high schools. (2005-2006)

THREE YEAR IMPLEMENTATION STRATEGIES

To be successful in reaching our goals we have implemented the following timelines and expected results for each of our previously listed goals. This implementation strategy is summarized in the table below.

Goal/ Objective	Activity	Skills acquired
1	Staff development training days	Office suite application skills
2	Home based network access	Availability to parents of school projects at home via Internet
3	Expansion of 10/100/1000 network	High speed Internet and network access
4	Offer technology certification through ETTC	MOUS Authorized Certification center
5	Renewal of software license agreements	Availability of proper software tools for certification exams
6	Technology based instructional tool acquisition	Availability of proper technology tools for exam preparation
7	Internship relationships with Advisory Board members	Real world application of skills acquired through training
8	Teacher PIP requirements	Faculty training and skill development based on NJCCCS
9	Mathematics and Science software incorporation	Enhanced software offerings based on NJCCCS for student use
10	Mathematics and Science computer lab	Enhanced access to technology for Mathematics and Science based curricula

■ *Table: Implementation Strategy over 3 years.*

Through the basic goals and the implementation strategies that we have summarized above, Union County Vocational-Technical Schools has made a conscious effort to strengthen our curricula to reflect the importance of technology in education. Our ongoing curricula updating budget has provided funding and guidance to all our staff in an effort to keep all curricula relevant.

All students regardless of gender, race, national origin, special need and religious affiliation have equitable access to educational technology. Our computer to student ratio, district wide is 1:1.5.

Current activities that are being implemented in the Vocational-Technical High School (VTHS) Information Technology class include the use of MS Outlook, NetMeeting, microphones and webcams to develop communication skills and critical thinking skills by identifying and solving problems as well as presenting documented solutions. Students are to demonstrate the relationship between communication tools and technology and the times and places they are used.

Both our full-time high schools use district technology, including but not limited to; scanners, digital cameras, microphones and web cameras to create Electronic Portfolio's (E-Folio) for each student. Students learn to create the portfolios on a project by project basis, ultimately using the e-folio as snap shots of their high school experience for college applications.

The inclusion of Starboard's in our lab environments, as well as mobile units, have enhanced the presentation of teacher lesson plans and have improved the learning environment of our students. These additions to our already multimedia driven classrooms have provided our teachers with the technology to enhance our students learning experiences.

The most telling of these results is the number of students that receive certifications at the end of their training periods. Certification opportunities are provided to all our students, including; A+ Certification, MOUS certification, Architectural Design Certification and Oracle.

Through funding from state and federal grants we have been able to offer the latest in software and educational tools for allowing the advancement of our students. UCVTS has in the past and will continue in the future to pursue grants that provide funding to assist our teachers in mastering educational and technology skills.

We are currently working on home access to network resources for parents and guardians to follow their child's progress from homework to projects to exams. This has begun already on an experimental level with teacher web sites and e-mail links to all faculty members, giving parents several ways to check on their students' progress and current activities.

The technology department also works closely with the Union County Adult High School in meeting the technology requirements for the Adult Basic Education grant. This grant is collaboration between Union County College, Workforce Advantage and Union County Vocational-Technical Schools.

The technology department runs training programs and provides maintenance of the computers and technology for the Adult High School, which has campuses in Elizabeth and Plainfield as well as Scotch Plains.

From the goals and objectives we set as a district we have created the basis for guiding and tracking student and teacher progress and have given our selves the best tools possible for reaching and exceeding these goals.

FUNDING PLAN

The Union County Vocational-Technical School District receives revenue from four primary sources: state aid, county tax levy, tuition, and grant funding i.e. Perkins, E-rate, etc.

Capital equipment and facility dollars are provided through two primary sources: grant programs and capital ordinances through the county. The majority of our capital expenditures are financed through a county bond ordinance. Approximately 40% to 50% or our annual technology expenses come from accounts in Fund 30, Capital Ordinance.

Fund 20, Special Revenues, pays for approximately 20% to 30% of our annual technology expenses. This includes money from grants and Perkins funding. Much of our district software licensing, computer labs and staff development is paid from accounts in this fund. Our campus software licensing through Microsoft and AutoDesk is a major portion of these funds.

The remainder of our technology budget is paid through Fund 11, Current Expenses. These expenditures account for 15% to 20% of our technology budget. These items include computer supplies and non licensed software. Some smaller licensed software, like our Adobe and Macromedia licensing is paid for through these funds.

Overall, our annual technology expenditure is less than 1 percent of our operational budget ($200,000 to $250,000). Over the next three years we expect our budget to increase by approximately 10% -30 %, enabling us to keep up with the changes in technology. The majority of our technology expenditures including hardware, software and infrastructure are funded through the capital ordinances process, Perkins funding and other grants.

PROFESSIONAL DEVELOPMENT

Professional development is an integral part of our technology plan. Annually, technology surveys (Appendix B) are distributed to all professional staff. The results of these surveys are calculated and recorded.

By questioning staff annually we can evaluate the effectiveness of the professional development program of the previous year and modify the offerings for the current year. Our current professional development program provides options for professional staff members in the following areas:

- Word Processing
- Spreadsheets
- Database
- Using PowerPoint for effective presentations
- Basic computer troubleshooting
- Internet Access
- Multi-Media
- Web Design
- Telecommunications
- Safari Video Distribution System
- Implementation of the NJ Core Curriculum Content Standards

Staff access professional development programs in technology training during non-contract time and at a negotiated contract rate of $20/hour. Secretarial personnel access Professional development programs in technology during the regular day.

To assist teachers in integrating technology into their curricula, the district has emphasized the importance for monitoring teacher's correlation of the NJCCCS to their curricula. This monitoring and training is recorded in the teachers PIP's as well as their evaluations.

Assistance with this integration is provided through multiple avenues. The summer orientation program, curricula rewriting grants, staff development days, etc. are all mechanisms to provide our teachers with the skills to improve their lesson plans, thus improving their student's achievement.

Offerings for secretarial personnel include word processing, spreadsheets, database, Internet, basic troubleshooting and any individual requests that merit consideration.

The Union County Educational Technology Training Center located on our campus serves as the training facility for our district. Staff members are encouraged to attend workshops at the ETTC that are related to their area of expertise.

The District's Professional Development Plan lists the goals and objectives, including a plan of action for district wide professional development created by the District Professional Development Committee.

All district professional staff are given their own laptop from the date they are hired. These computers are used both on and off campus for preparing lesson plans, taking attendance, and reporting grades. There is a mandatory training session that is included in our summer orientation program that is attended by all new employees. This training must be attended before the laptops are issued.

During this summer training all professional staff members are also trained in writing curricula. This training is designed to help new faculty members identify and implement technology and other core content area curricula into their own curricula.

Computer labs in both high schools are equipped with starboards and projectors which are used to enhance the presentation of lessons. Faculty has access to digital cameras and non-linear video editing equipment for student portfolios and specific projects.

All rooms have access to our video distribution system, which has a library of over 600 titles on DVD, Laser Disk and Video tape as well as cable and satellite TV stations. Teachers are also provided with over 10,000 other videos and video clips via United Streaming, an online video streaming service.

The Magnet High School has piloted Autodesk's Adept software this past year, which provides electronic submission of student files, drawings and projects. This program will be expanded to include all teachers in both full-time high schools, during the 2004-2005 school year.

Part of the responsibility of UCVTS's academy's administration is to continue to research new and innovative ways to incorporate technology into the curricula. Results of this research are shared annually during the summer training program and during the first staff development day in September.

The Coordinator of Technology along with the Technology Committee will create customized training programs to be offered through the ETTC for Union County Vocational-Technical School district staff.

STAFF DEVELOPMENT SURVEY RESULTS

Our 2004 Staff Development Survey provided us with the following information on teacher proficiency with regards to technology. The survey asked teachers to choose what they consider their computer skills to be. The choices were novice, intermediate, and expert.

Vocational-Technical High School

30% novice
25% intermediate
45% expert

Results of the survey showed the teachers in the Vocational-Technical High School (VTHS) have developed a mastery of word processing, the use of multimedia and the Internet in the classroom and e-mail.

Their ability to troubleshoot computers was sufficient on a daily basis, but they could use more training.

The areas most in need of training were working with databases, spreadsheets, desktop publishing and advanced Internet and web design.

Magnet High School

19% novice
28% intermediate
53% expert

Results of the survey showed the teachers in the Magnet High School (MHS) have developed a mastery of word processing, the use of multimedia in the classroom, Internet in the classroom, desktop publishing and e-mail.

Their ability to troubleshoot computers was sufficient on a daily basis, but they could use more training. Other areas that needed strengthening were spreadsheets and databases.

The area in need of the most training was creating a web page. As a result we have offered several classes in Dreamweaver and are investigating the possibility of offering space on our web server for teachers to post their own pages. Some teachers are currently using free space on various web servers to post their pages.

Results of our staff development survey are used in determining the skills that are taught during our summer orientation program and for determining staff development offerings during the school year.

Results are also shared with the ETTC to assist in creating workshops that are geared toward the teachers needs. Individual requests recorded on the surveys are also shared and are handled as a mentoring opportunity.

Some of the planned professional development activities, as planned out with the ETTC are:

- Introduction to Laptop Use
- Introduction to MS Office XP
- Norton Antivirus Updates

- Windows and Organizing Files
- Safari-voice, video and data integration
- Network usage and organizing files
- CSI Grading and Attendance software
- Managing Grades with Excel
- Creating Digital Portfolios
- Multimedia Presentations with PowerPoint
- Microsoft Publisher
- Dreamweaver
- Integrating Smart Boards into the Classroom

As building administrators are very active in determining what staff development is offered for their staff, they are also active participants in the training. Several administrators in each school are still in the classroom teaching during their work day. This teaching component has the administrators, first hand, utilizing the same technology that their teachers use.

Being in the classroom for a portion of their day has given the administrators reason to attend the various training sessions offered to the teachers in the district. Beyond the training sessions they participate in on campus, the PIP's for these administrators also includes professional development activities off campus.

The participation of all our staff in professional development workshops helps us to keep implementing the latest technologies seamlessly into the district. This coordination of implementation and training provides our students with the best chance of getting a quality education.

EVALUATION PLAN

The Union County Vocational-Technical School District's technology committee, under the direction and leadership of the Coordinator of Technology is responsible for input and development of the technology plan. The committee is made up of support staff, teaching, administration, and industry representatives.

The plan provides a vision statement for the implementation of technology throughout the school district. It succinctly defines the District's goals and objectives through the year 2007. It describes what currently exists, what the immediate future plans are and what the District sees as its long-range technology goals; the description takes into account both hardware and software needs.

A critical element of the technology plan is its focus on staff development. A multi-year plan is in place for the training of all District employees – both professional and non-certificated staff.

The Coordinator of Technology in concert with the district technology committee and the Superintendent of Schools will be responsible for monitoring the progress of the technology plan. The committee will continue to meet on a regular basis and assess the successful implementation of the plan in the following ways:

- interviews with district personnel on the staff development plan;
- observable inclusion of technology into curriculum and instruction by staff (PIP's);
- continual evidence of technology related efficiency throughout all office areas;
- a demand for new technology for classroom use;
- the inclusion of internet enhanced instruction;
- yearly analysis of whether all implementation goals (hardware, software, wiring, etc.) have been met.

This document represents a guideline for our District's technology vision. As deadlines may be met earlier or later then expected, the overall outcome of this plan may be modified. It is the goal of the Union County Vocational-Technical School District to provide its' faculty and students with the best possible technology and training materials.