

Central Carolina Community College Technology Plan 2016-2018



Table of Contents

Technology Vision and Direction.....	3
CCCC Vision Statement.....	3
CCCC Planning Assumptions.....	3
CCCC Planning Goals.....	4
Part I: Network/Technology Infrastructure.....	4
LAN Architecture/Equipment.....	4
WAN Architecture/Equipment.....	5
WAN Committed Bandwidths.....	5
Server Architecture.....	5
Server Redundancy and Protection.....	10
Part II: Academic Computing.....	11
Academic Computing Vision Statement.....	11
Academic Computer Labs.....	11
Software/Hardware Procurement and Use.....	12
CCCC Computer Use Policy/Green Position & Acknowledgement.....	12
Academic Support Services - Library.....	14
Recommendations - Library.....	16
Academic Support Services – Academic Assistance Center.....	16
Recommendations – Academic Assistance Center.....	17
Part III: Administrative Computing.....	17
Administrative Technology Vision.....	17
Appropriate Technology Applications.....	17
Business Office Software.....	17
Student Development Services.....	18
Help Desk.....	18
Helpdesk Procedures.....	19
Recommendations – IT Department.....	19
Part IV: Technology Training.....	19
CCCC Training.....	19
Recommendations – Technology Training.....	19

Central Carolina Community College Technology Plan – 2016-2018

Technology Vision and Direction

Central Carolina Community College is a teaching and learning organization that is committed to continuous self-evaluation and improvement. To facilitate this commitment, the college will incorporate proven technology in the delivery of services we provide to prepare our customers to meet the challenging demands of current industry needs and our own administrative functions.

First and foremost is the critical need for students to be able to access information, manipulate data, synthesize concepts, and creatively express ideas to others using video, text and audio media. Secondly technology is an administrative tool that can bring efficiency to the managerial, instructional, and assessment realms of education.

The College recognizes that faculty and staff are its most valuable resources, and well-educated students are its most important outcome. Technology is a tool that is valuable only if the faculty and staff are empowered to use it. An ongoing professional development program to support faculty and staff is essential for the successful integration of technology into the College's environment. With these guidelines in place, CCCC has set the following Vision Statement as the guide for the 2016-2018 Technology Plan:

CCCC Vision Statement

Central Carolina Community College is a nationally recognized, world-class leader providing learning opportunities that contribute to economic progress and cultural enrichment for the students and communities we serve.

Technology at CCCC enables the College's mission as a teaching and learning institution. The college will continuously develop and support the interactive voice, video and data systems necessary for a comprehensive program linking student, faculty and staff access.

The CCCC Technology Plan is not static but constantly evolving with the ultimate goal of using technology to promote excellence in programs, processes, and outcomes. While technology alone cannot improve ineffective processes, the effective use of technology can enhance the college's ability to deliver quality services and programs.

CCCC Planning Assumptions

To ensure that the College stays focused on developing an action plan that will foster the College's goal to create a technology environment that will enhance teaching and learning, the following assumptions have been established as the guideposts.

1. Increased use of technology by our customers will require that CCCC improve delivery systems.

2. CCCC must increase their use of technology to enable effective partnerships with those businesses and agencies that have not been sufficiently served in the past.
3. The increasing demand for people with technology expertise in supporting current equipment requires that CCCC provide technology training in up-to-date technologies.
4. The increasing demand for connectivity requires that CCCC develop the communications infrastructure to support distance learning and remote access to resources in a 24/7 environment.
5. CCCC must increase use of technology to reach underserved customers
6. CCCC must work to reduce administrative barriers to the effective use of technology at CCCC.

CCCC Planning Goals

1. Make a comprehensive information technology management structure and set of decision-making processes.
 - A. Develop a management team approach that further integrates and leads campus information technology decision making.
 - B. Develop a system to establish IT priorities.
 - C. Develop a plan for informing the campus community about IT priorities.
 - D. Develop project resource needs assessment for completion of priorities.
 - E. Establish a troubleshooting process.
2. Enhance Faculty, Staff, and Student access to information, resources and Services.
3. Promote and support research and use of innovative network/communications technologies. Provide an operating infrastructure that is reliable, flexible, and scalable to the needs of the college.
4. Develop more effective means of communicating campus information technology activities to both an external and internal audience.
5. Improve, enhance, and maintain computer applications used to support all administrative functions in all divisions.
6. Enhance campus instructional technology capabilities to keep CCCC on the forefront of this technology.
7. Increase opportunities for staff development and training to enhance technology skills and effectiveness.

Part I: Network/Technology Infrastructure

LAN Architecture/Equipment

Central Carolina Community College's current network architecture consists of a HP 8212z core. The Procurve Switch 8212zl is a high-performance, highly available, chassis switch platform that enables unified core-to-edge adaptive network solutions. This switch has High-density port connectivity: 12 interface module slots, up to 288 wire-speed 10/100/1000 Poe-enable ports/48. Advanced layer 2 and layer 3 functionality such as multicast filtering, enhanced QOS/Cos services, virtual LANs, and multilayer traffic classification. This switch also provides network-wide traffic control. The HP 8212z has modular chassis configuration. It is ideal for campus and building-level switching in the core and for workgroup aggregation. With multilayer IP switching and Power over Ethernet available features, it is ideal as a campus core switch. The LAN core connection for each building communicates over fiber optic multimode cable. In each building users are connected with HP 3500 or 3com 5500 switches.

Each give users a 10/100/1000 private Ethernet connection. The 3com 5500 and HP 3500 switch have a gigabit Ethernet backbone that links to the Hp 8212z Core. CCCC has an internal Checkpoint Firewall which prevents unauthorized access to the administrative systems. The entire network is protected by an external Checkpoint firewall. The use of VLANS successfully segments our network to make it more manageable and secure.

WAN Architecture/Equipment

Central Carolina Community College’s wide area network architecture consists of the same HP 8212z core switch used for the LAN. CCCC’s remote sites have 3com 5500 or HP 3500 core switches. CCCC’s internet access is provided by two 1000 Mb connections. Both 1000Mb connections are provided through MCNC, but travel diverse paths to allow more efficient redundancy. These are connected to switches using BGP protocol to allow automated switching in the event that one fails. The outside perimeter is guarded by the Checkpoint Firewall. WAN technologies are implemented at 9 remote campus sites that connect to the Lee County Campus through a private fiber network purchased through Charter Communications. These sites are ESTC, Siler City, NCST, Wicker Lifelong Learning Center, West Harnett Center, Dunn Center, Harnett County Campus, Harnett Health Sciences Center, and Chatham County Campus.

WAN Committed Bandwidths

Sanford (Lee County) Campus	1000 Mbps
Pittsboro (Chatham County) Campus	1000 Mbps
Harnett (Lillington) Main Campus	100 Mbps
Siler City Campus	100 Mbps
North Carolina School of Telecommunications (NCST)	100 Mbps
Emergency Services Training Center (ESTC)	100 Mbps
West Harnett Center	40 Mbps
Wicker Lifelong Learning Center	100 Mbps
Harnett Health Sciences Building	100 Mbps
Dunn Center	20 Mbps

Other Site Connections

Triangle South Enterprise Center – CenturyLink DSL
Arc Education Center – Harnett County Shared Internet Link

Server Architecture

CCCC has over 110 physical and virtual production servers. The server environment is mixed (heterogeneous) of UNIX, Linux, and Windows servers. Virtual servers reside on a server that runs a virtual kernel that tells an operating system that it has virtual hardware. Therefore many servers can run on one large machine.

Services provided:

Active Directory, A directory service, made by Microsoft that automates management of user data, security, and distributed resources. It enables interoperation with other directories.

ClearPass Policy Manager, provides secure network access in a mobile world. It features ultra-scalable AAA with RADIUS and TACACS+ and a policy engine that leverages contextual data based on user roles, device types, app usage and location.

DHCP or Dynamic Host Configuration Protocol, a protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network.

DNS or Domain Name System an Internet service that translates domain names into IP addresses.

Google Apps Email - Google Apps is an enterprise collaboration system that provides secure e-mail, calendaring, scheduling, instant messaging, task management, contact management, document management, and other productivity tools for our Faculty and Staff. Google Apps is hosted and provided by Google.

Doc e Serve – Doc e Serve, a Softdocs product, handles reports and printing for our CIS Ellucian system. Doc e Serve enhances existing host systems and legacy systems with the flexibility of image layout, reporting, sorting, and merging multiple files, MICR, positive pay and much more.

Aruba Wireless – Aruba has integrated all of the elements required to deliver enterprise mobility - security, application, network and radio frequency (RF) management services - into a unified solution. The components of this solution include an award-winning portfolio of wireless LAN, security, diagnostic, network management, and integration products backed by a worldwide support and training organization.

VMware- VMware ESX Server is virtual infrastructure software for partitioning, consolidating and managing systems in mission-critical environments. ESX Server and VMware Virtual Infrastructure Nodes provide a highly scalable virtual machine platform with advanced resource management capabilities. Many Virtual Machines can exist on one machine.

Bradford Networks / Campus Manager - Bradford Campus Manager™ is a user-centric, network-based solution with integrated identity management, endpoint compliance and usage policy enforcement capabilities. The solution actively monitors and controls network users and devices to provide enhanced security within the network. Through the enforcement of network usage policies, the solution ensures the network is safe and secure. Bradford Manager will help solve important network issues such as:

- Controlling unwanted users
- Enforcing anti-virus and anti-spyware version control
- Enforcing network policies
- Controlling network access
- User and device management

Campus Manager collects information from the user, device and network, correlates that information with established policies, and effectively allows network administrators to take action.

Etrieve Flow – Etrieve flow manages process-based workflows across all departments. The intuitive workflow design editor allows users to build workflows easily—no coding required.

Veritas NetBackup – VERITAS NetBackup Enterprise 7.6.1 is the industry’s leading enterprise data protection solution that provides centralized control from a single management interface. The multi-tier architecture of VERITAS NetBackup Enterprise provides CCCC with a fast, reliable, data center strength backup and recovery solution that can protect environments that span terabytes to petabytes in size. The NetBackup Enterprise “master” server uses other NetBackup Enterprise “media” servers as workhorses to accomplish backup and recovery tasks in a highly centralized fashion. Key features in VERITAS NetBackup include the industry's most advanced media management, disaster recovery support, and intuitive Java and Windows 7, 8, & 10 administrative interfaces. In addition to protecting data in a mixed UNIX, Windows 7, 8, & 10, VERITAS NetBackup provides advanced, “application aware” solutions for all leading applications including Oracle, Informix, Sybase, DB2, SAP R/3, NCR Teradata, Microsoft SQL Server, Microsoft Exchange and Lotus Notes. VERITAS NetBackup provides high performance backup, archiving, and recovery services for UNIX, Windows XP/Windows 7, and PC client systems in client/server networks. It can be economically scaled to serve any size operation ranging from a standalone system to an entire enterprise.

Storage devices can be disk, tape, or optical. The Media Manager component of VERITAS NetBackup manages the tape and optical storage and is designed so that secondary storage devices can also be shared by other VERITAS storage products, such as VERITAS Storage Migrator. NetBackup provides extensive and automated support for most tape libraries, which means human intervention is rarely required.

Administrators can set up periodic schedules for automatic, unattended backup operations for clients across the network. These backup operations may be full, incremental, or differential. A full backup processes all files, while an incremental backup only processes those files changed since the last full or incremental backup. Differential will process any file changes since the last backup. By carefully scheduling automatic backups, an administrator can achieve systematic and complete backups over a period of time, and optimize network traffic during off-peak hours. In addition to scheduled backups, administrators can perform manual backups of client data using the same criteria as specified for automatic backups. Manual backup operations are useful in special circumstances, such as backing up a client that missed a previously scheduled backup or preserving a system configuration prior to installing new software.

The NetBackup Master Server maintains a database (called the catalog) which records information about all backup and restore operations. A separate backup procedure is provided to protect the NetBackup catalog to facilitate recovery in case of a disk failure.

Checkpoint Firewall 1 – A system designed by Checkpoint to prevent unauthorized access to or from our network. It is a rule based firewall that prevents attacks and allows monitoring and management of the internet gateway.

IIPS - The IIPS system (Institutional Information Processing System) contains legacy student records and information. It runs on a Solaris platform. The student and employee records have been converted and moved over to the CIS system. This system is still in operation for record verification and legacy data.

CIS - The College Information System (CIS) is an information system that has been implemented at CCCC and all other community colleges throughout North Carolina. It houses all of the student and employee records for CCCC. It runs on a Solaris Platform on a UNIDATA database. The web interface is called WebAdvisor.

Easyspooler- ROC Easyspooler solves key output management problems in cross-platform environments: printing to multiple printers in UNIX, print spooling for Windows, and sharing printers across UNIX, Linux, and Windows systems.

IPStor® Enterprise Edition - IPStor Enterprise Edition software provides a comprehensive set of storage services for your enterprise applications to ensure nonstop data availability and recoverability, simplify storage management, and maximize performance. IPStor creates an intelligent, open SAN/NAS infrastructure across multiple protocols (Fibre Channel, IP, iSCSI) using heterogeneous storage.

E-Procurement- E-Procurement combines the use of Internet technology with procurement best practices to streamline the purchasing process and reduce costs. North Carolina's State agencies, local governments, public institutions, businesses and citizens will all benefit from E-Procurement. Through reduced monetary and administrative costs for organizations using the system, increased business opportunities for suppliers and more efficient use of tax dollars, E-Procurement is good for North Carolina.

Etrieve Content – The College has implemented this document imaging solution for the Business Office, Purchasing, Human Resources, and Accounts Payable department. This allows the College to effectively capture, archive and manage information.

Doc e Fill – Doc e Fill allows the college to create, complete and submit forms with ease. Our electronic forms can be pre-populated with data from existing solutions allowing the college to be more efficient and productive.

Citrix- Much like virtualized servers, Citrix virtualizes applications and can stream them to the desktop. This makes upgrades and migrations much easier as the application only exists on the server.

Student Email - Student email is hosted by Google's Gmail. Gmail's simple to use interface makes it a popular tool for student use.

Web Advisor - Web Advisor is an additional CIS component that allows students to access grades, register, pay for classes, and request transcripts from anywhere in the world.

Avaya IP Office – Telephone System - Central Carolina Community College installed the Avaya IP Office Server Edition system in 2013. The Avaya IP Office helps reduce costs and increase efficiencies by converging data and voice communications on a single network, simplifying third-party applications integration, and offering extensive multisite IP connectivity options. Intuitive management tools with simple, web-based administration and user programming further reduces costs and increases productivity. This system is designed for up to 32 sites, and from 5 to 2000 users. The college has a primary server located on the Lee Main Campus and a secondary server located on the Pittsboro Campus. There is an IP 500 V2 appliances located at the Lee Main Campus, the Harnett Main Campus and the Pittsboro Campus. Highlights of the Avaya system are listed below:

Primary Server

- Provides call control, web portal, web collaboration, mobility, IM and presence, messaging, and centralized licensing in a single server
- Runs on an Avaya-provided Linux server

Secondary Server

- Provides same as Primary Server, but provides additional capacity and/or resiliency

Expansion System

- Provides additional capacity at a remote location
- Can be an Avaya-provided Linux server, customer-provided virtualized server, or an IP 500 V2 appliance

System Capacities

- Up to 2,000 users at a single site or across 32 locations
- Up to 512 SIP trunk channels per Primary/Secondary server
- Up to 256 SIP trunk channels per Expansion System
- Trunks with IP 500 V2 - 148 H.323, 240 digital, 208 analog trunks (not simultaneously)
- Up to 150 Voice Messaging ports
- 256 audio conferencing ports per server (256 parties per conference)
- Up to 300 concurrent Avaya one-X® Portal users on primary or secondary server*
- Up to 750 concurrent Avaya one-X Portal users on a dedicated server*

Direct Dialing from Lee Campus

Central Carolina Community College has 4 Digit Extension Dialing between all sites listed below provided by the Avaya IP Office system with the exception of ARC Education Center which is operating a standalone 3com NBX 3000 system.

Telephone Systems for CCCC Sites

Lee Campus	Avaya
ESTC - Emergency Services Training Center.....	Avaya
NCST – North Carolina School of Telecommunications.....	Avaya
Wicker Life Long Learning Center	Avaya
Pittsboro Campus.....	Avaya
Siler City Campus	Avaya
Harnett Main Campus.....	Avaya
West Harnett Campus.....	Avaya
Harnett Health Sciences Center.....	Avaya
Dunn Center	Avaya
Innovation Center	Avaya
ARC Center	3com NBX 3000

*All other sites are using an analog line from their nearest telephone company.

Telephone Line & Equipment Repair

All B1 line repairs for Central Carolina Community College are provided by CenturyLink or Windstream. All repairs for data lines, telephone systems and desk phones are provided by CCCC IT Staff.

Server Redundancy and Protection

RAID - Redundant Array of Independent (or Inexpensive) Disks – A category of disk drives that employ two or more drives in combination for fault tolerance and performance **RAID** provides data striping at the byte level and also stripe error correction information. This results in excellent performance and good fault tolerance. All servers on the Lee Campus storing critical data as identified by administration have **RAID** fault tolerance.

SAN Environment – Storage Area Network (SAN) is a high-speed sub-network of shared storage devices. A storage device is a machine that contains nothing but a disk or disks for storing data. A SAN's architecture works in a way that makes all storage devices available to all servers on a LAN or WAN. As more storage devices are added to a SAN, they too will be accessible from any server in the larger network. In this case, the server merely acts as a pathway between the end user and the stored data. Because stored data does not reside directly on any of a network's servers, server power is utilized for business applications, and network capacity is released to the end user. We are currently using Falcon Store software for our SAN software. The SAN allows for snap-shots of the data to be taken at any time of the day. This allows for easy recovery to any snap-shot. As an additional safeguard snap-shots can be replicated to another location.

Checkpoint Firewall-1 – A firewall is a network security device positioned between two different networks, usually between the organization's internal trusted network and the Internet. A firewall ensures that all communications attempting to cross from one network to the other meet the organization's security policy. Firewalls track and control communications, deciding whether to allow, reject, or encrypt communications. In addition to protecting trusted networks from the Internet, firewalls are increasingly being deployed to protect sensitive portions of local area networks and individual PCs. Firewalls can be implemented in both hardware and software or a combination of both. Checkpoint Firewall-1 software runs on Checkpoint's SPLAT OS. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria. Checkpoint software checks all packets by a set of user-defined rules to see if it can pass through the firewall, or else be dropped. Our Firewall cluster contains two Firewalls for redundancy and one management server to control the other two. We also have an internal firewall cluster to protect administrative systems.

Power Redundancy – Most of the CCCC servers have redundant power supplies. If one power supply fails then the other will take over. Our CIS, Active Directory, VMware and other servers all have hot swappable power supplies. For servers in the main server room with redundant power supplies, each power supply is connected to a different UPS. This ensures that if one UPS fails, those servers with dual power supplies will continue to operate on the other UPS.

UPS Backup (Uninterruptible Power Supply) – CCCC has multiple UPS units. A UPS is a power supply that includes a battery to maintain power in the event of a power outage. If the power goes off we have the servers set to automatically turn themselves off after 5 minutes of power loss. Because the servers automatically shut down, the risk of data loss is reduced.

Disaster Recovery Room - CCCC's Disaster Recovery Room is located in Bell Hall and contains our redundant servers and switches. These redundant systems will serve production needs in the case of an emergency that would prohibit the main server room from providing these services.

Data/System Backup – Tape backups are done nightly and retained for a minimum of seven days. Tapes are rotated on Thursday and Mondays. The Thursday and Monday backups are retained for four weeks. Additional annual backups of the administrative systems are performed at fiscal year-end (June 30th) with a retention period of infinity. Tape backups are performed using an HP StorageWorks 4048 and the 2024 system, which use LTO-4 tapes, (**Linear Tape-Open**). LTO-4 tapes are capable of storing 1.6 TB of data. The 4048 holds 48 LTO-4 tapes and the 2024 holds 24 LTO-4 tapes. Both systems have the ability to backup multiple streams of data from multiple systems at one time. These high capacity systems work in tandem with available Fibre Channel interfaces to help manage rapid data growth in a cost-effective manner. To manage the backups we use Veritas NetBackup, which is a network backup software. There is a NetBackup Server, CCCC-SGW03, which runs the Veritas Software on a Sun Solaris 10 platform. This Sun server manages the StorEdge and StorageWorks Libraries.

Part II: Academic Computing

Academic Computing Vision Statement

Central Carolina Community College is committed to empowering students to increase their performance capabilities through self-discovery, education and training programs. These programs will facilitate the personal, social, and economic growth of individuals and produce measurable benefits to the students, to their employers, and to their communities. In the academic arena, Central Carolina Community College is committed to the following:

- The necessity to prepare students to enter the workforce with the technological skills needed for the job
- Increased opportunities to use technology in teaching, whether in the traditional classroom/lab or through distance education
- The need for individuals to use technology in creating new basic competencies
- Meeting increased fiscal and human resources demands for institutions of higher education as a result of technology
- New models of communication as a result of technology

Academic Computer Labs

Academic computing labs are located on many sites within Harnett, Lee and Chatham County. As shown in the following chart, the college makes available 1688 computers for academic study:

	ARC - Lillington	Club Insight	Dunn Aspiration & Miracles	DAW Civic Center	Dunn Center	ESTC - Emergency Services Training Center	Harnett Campus	Harnett Health Science Center	Harnett Mental Health	HCI - Harnett Correctional Institution	Industry Services	Jonesboro Methodist Church ELS	Lee Campus	Lee County Industries	Lifelong Learning Center	NCST - NC School Of Telecommunications	Pittsboro Campus	RALM	Siler City	TSEC - Triangle South	URS - Dunn	West Harnett	Total
Labs	25	3	7	12	5	9	292	52	5	42	0	6	647	8	145	52	191	9	94	42	8	34	1688
Fac/Staff	2	0	0	4	5	5	46	15	0	10	3	0	265	0	31	8	41	0	17	3	0	4	459

A Department Chairperson is in charge of some of the labs. All hardware and software are installed and maintained by the Information Technology Department of the College.

Software/Hardware Procurement and Use

Each department that uses the computer labs is responsible for determining the software applications to be used in those labs. The CCCC IT Department is responsible for loading all software upon receiving a budget-approved request.

To ensure that all computers are used as intended, CCCC has adopted the following Computer Resource Policy:

CCCC Computer Use Policy/Green Position & Acknowledgement

CCCC is committed to energy reduction and conservation of college resources. Each staff member should make every effort to reduce the use of paper, conserve energy, and support healthy work environments. The college IT policy is to turn off all computers and peripherals each night except Tuesday and Wednesday when computers are updated and scanned. Offices should conserve energy by limiting the use of mini-fridges, microwaves, and coffee pots when communal alternatives are reasonably available near the workspace. When heaters are required for medical or comfort reasons, a low energy alternative is recommended.

Central Carolina Community College licenses the use of its computer software and operating systems from a variety of outside companies. Central Carolina Community College does not own this software or its related documentation, unless authorized by the software developer, and CCCC does not have the right to change or reproduce it. According to the U.S. Copyright Law, illegal reproduction of software can be subject to civil and criminal penalties including fines and imprisonment. Any employee of Central Carolina Community College caught making, acquiring, or using unauthorized copies of computer software on any of the college's computers or computer equipment will be disciplined appropriately.

Central Carolina Community College's computing and network resources are intended to support the school's mission and are to be used in a manner that is consistent with the goal to provide quality education to our students. Use of Central Carolina Community College's computing and network resources are limited to employees and registered students, and community library patrons who hold a valid library card. All users are expected to act responsibly to maintain the integrity of Central Carolina Community College's computer and network resources. Any use of the college's computer or network resources that is inconsistent with these purposes is considered inappropriate use and may jeopardize further authorization for use or result in termination of access.

Acceptable Use:

- Users are provided with desktop computers to enhance their productivity. These computers are to be used for work related tasks only.
- Respect the legal protection provided by copyright licensing of programs, data, and other sources of information.

- Respect the need for information and network security. Resources should only be used by an authorized user, using their assigned account.
- Computers in labs and the Learning Resource Center are to be used only by current Central Carolina Community College students, library patrons, and employees. Campus computers are to be used specifically for class assignments and educational purposes. Computers in the Learning Resource Center are available to the public with an approved Central Carolina Community College library card.
- The use of the Internet is a privilege and must support education, research, life-long learning and be consistent with the educational purpose and goals of Central Carolina Community College.

Unacceptable Use:

- Do not use Central Carolina Community College computers or networking resources to engage in any behavior that violates any Central Carolina Community College policy. Do not use Central Carolina Community College computers or networking resources to engage in any behavior that violates any federal, state, or local law or regulation.
- Do not use Central Carolina Community College computers or networking resources for personal use so as to promote commercial activity or any other unsanctioned CCCC activities.
- Do not use Central Carolina Community College or network resources to distribute or make copies of any software.
- Do not install any hardware or software without assistance or approval from the Information Systems Department.
- Do not install or allow to be installed any software that was not directly procured by Central Carolina Community College.
- Do not modify any hardware or software settings in any way that will require Information Technology Department technical maintenance.
- Do not allow anyone from outside sources to reconfigure or load software without direct assistance or approval from the Information Technology Department.
- Do not allow children to use any of the computers in the curriculum computer labs.
- Food and drink are not allowed in any of the computer labs.
- Computer users shall not intentionally interfere with the normal operation of computer networks.
- Do not share passwords with anyone for any reason.

My signature below verifies that that I have read and fully understand this Computer Use Policy.

Employee's signature

Date

Academic Support Services - Library

Central Carolina Community College Libraries have 68 public access computers in libraries at the Sanford and Lillington campuses. These computers are connected to the CCCC computer network and provide access to electronic resources required for 21st century library research. This includes student access to the library catalog, online research databases, the Internet, Blackboard, Microsoft Office software, and other software requested for student use by curriculum departments. Additionally, 24 laptop computers are available for student use in the libraries, and 7 large touch-screen computers are available in library study rooms. The College wireless network allows students to access the Internet and library resources on their personal laptops and mobile devices.

Thirty-eight computers and 16 laptops are located at the Sanford campus. Sixteen computers are located in the open area of the library, and 22 are located in a computer lab. This lab, used for library instruction classes, staff development, and occasional curriculum class use, is equipped with Insight software. The Insight software allows the instructor to broadcast the instructor's workstation to all computers in the lab, as well as monitor individual workstations. Five touch-screen computers with high-definition webcams and DVD drives are located in library study rooms for collaborative group study. Study rooms may be reserved online via the LibCal system on the library website. Library study rooms had over 2300 reservations during 2014-2015 for all campus locations. All library computers and laptops print to laser printers. The Sanford campus library also has one ScanPro 2000 digital microfilm reader/scanner.

The Lillington campus library has 30 public access computers, 8 laptops, and laser printers. Twenty of these computers are in a lab, which also uses the Insight software on the instructor's workstation. Two touch-screen computers with high-definition webcams and DVD drives are located in study rooms for collaborative group study. The Harnett Health Sciences Center also has 6 computers and a laser printer for accessing library resources. Other instruction sites also have computers for accessing library resources.

Thirty-four public access computers and a laser printer are available at the Pittsboro campus in the Chatham Community Library computer lab. These are connected to the Chatham County computer network and are not maintained by CCCC.

The CCCC Libraries utilize the SirsiDynix Symphony library automation software as a member of the CCLINC (Community College Libraries in North Carolina) consortium with 49 other community colleges. Through the shared online catalog, students or members of the community who have library cards can place requests for books from other community colleges and receive them at no charge at their own campus library. Requests are usually filled within one week. Students have access to this online catalog from home and at other CCCC instruction sites. Additional access to materials owned by other libraries in the United States is available through the OCLC interlibrary loan system. In 2014-2015, library staff completed over 11,000 circulation transactions and over 1400 interlibrary loan transactions for students, faculty/staff, and other library patrons.

Students have access to the NC LIVE collection of 74 online databases, as well as other CCCC databases. NC LIVE offers North Carolina citizens access to a diverse collection of electronic resources including: complete articles from over 19,000 newspapers, journals, and magazines; access to over 184,000 eBooks and 2,000 eAudio Books; and access to over 20,000 streaming videos. The CCCC libraries also

subscribe to the EBSCO Community College eBook Collection of over 50,000 eBooks, JSTOR, Biography Reference Center, Library Literature and Information Science Full-Text, Science Direct, OVID, and Westlaw Next. The library provides class instruction to students on the use of all these resources. All databases are available to students in the library and off campus with the use of a single password made accessible via an EZ Proxy server. A discovery search tool called Summon allows students to search the majority of all library databases in a single search, facilitating easier access to database searching. During 2014-2015, over 404,000 database searches were performed by all library users.

Access to reference assistance is available in person, by phone, through e-mail, or through NCKnows, a statewide virtual reference chat service. NCKnows is available to students 24 hours a day, seven days a week and is staffed by NC librarians. Students also have access to online tutorials and online research guides (LibGuides) for additional assistance via the library website. During 2014-2015, librarians completed over 14,000 reference transactions with all library users; students viewed online tutorials over 1200 times; and there were over 30,000 views of the online research guides.

In a library survey in fall 2014, students were asked about library spaces and technologies, and their needs in these areas. Students indicated that having some library computers dedicated to quick-stop printing and Internet access would be helpful for students on the go. Students also indicated that they could benefit from having a space to work on class projects with specialized computer software and equipment. Student suggestions to equip this type of library work space, known in today's libraries as a Makerspace, included: color printers, projector, larger work tables, art and craft supplies (markers, paper, glue, tape, letters, poster board, etc.), laminating machine, cutting machine, 3D printer, poster printer, scanner, audio/visual editing software and recording equipment, and white boards. The library will begin implementing these suggestions with a small, mobile Makerspace and then expand to a larger, dedicated library space in the future.

Unit Mission:

The CCCC Libraries support the college mission by empowering students, faculty, and staff with the skills to effectively find, evaluate and use information, and by providing access to quality information and technology resources.

Goals:

1. To provide individual and group course-integrated library instruction that facilitates critical thinking, connected learning, and personal growth; classes are delivered in-person and online.
2. To provide distance education learners with resources and services equivalent to those offered to on-campus students.
3. To provide welcoming and well-maintained physical and virtual spaces conducive to learning and studying.
4. To develop a high quality collection of print and digital resources in support of the college curriculum.
5. To provide easy access to our information resources and to additional materials available from other institutions.
6. To provide current technological tools which facilitate equal access to electronic resources.
7. To connect to the college and local community by engaging in outreach activities and maintaining a positive visible presence on campus.

Recommendations - Library

Based on the current status, the following recommendations/goals are presented for 2016-2018:

1. Maintain wireless Internet access for the Library.
2. Update/replace all existing Library lab, public access, study room, and staff computers and/or software as needed to ensure continued access to online resources and services.
3. Increase the number of Library computers on the main floor, in library computer labs, and in study rooms as College population and/or library space increases. Add fast track computers near library entrances for quick computer/printing access on the go.
4. Maintain the EZ Proxy server for accessing online resources off campus.
5. Create a Library Makerspace with specialized multimedia and creative software, scanners, 3D printing, necessary computers, and other technologies, equipment, and materials for students to work on class projects.

Academic Support Services – Academic Assistance Center

Academic Assistance Centers are available on the Lee County, Chatham County, and Harnett County campuses. Each Academic Assistance Center provides an open computer lab that is available to all students during many day and evening hours. The specifics of each of these labs are listed below:

Lee Campus

#Computers		Hours	Services
36 – Open Use Computer Lab	M-Th	8:00 a.m. – 8:00p.m.	Free Tutorial Services
	F	8:00 a.m. – 3:30p.m.	
10 – Pearson Vue Certified Testing Center usage			Test proctoring services
2 – Science, Technology, Engineering, & Mathematics (STEM) Lab usage			Computer usage and software navigation assistance services
			Pearson VUE Certified Test Center exam administration services

Pittsboro Campus

#Computers		Hours	Services
23 – Open Computer Lab	M-Th	8:00a.m. – 6:00p.m.	Free Tutorial Services
1-reserved for scanner use	F	8:00a.m. – 3:30p.m.	Computer Apps Assistance Make-up Testing Scanner Use

Harnett Campus

#Computers		Hours	Services
23 – Open Computer Lab	M-Th	8:00a.m. – 7:30p.m.	Free Tutorial Services
	F	8:00a.m. – 3:00p.m.	Computer Apps Assistance Make-up Testing

The Coordinator of Academic Assistance, based on the Lee County Campus, manages all sites with assistance from the Director of Student Learning at the Harnett County Campus and the Student Learning Coordinator at the Chatham Campus. Software and hardware requirements for all coursework are determined by each Curriculum Department. The CCC Information Technology Division is responsible for all software and hardware installations.

The Lee Campus Academic Assistance Center, housed in the Science Building, is an approved Pearson Vue Testing Center. The Coordinator for Academic Assistance and the Program Assistant are Certified Testing Administrators. The CCC Information Technology Division is responsible for working with the Coordinator for Academic Assistance to ensure the Testing Center meets the specifications established by Pearson Vue.

Recommendations – Academic Assistance Center

Based on the Current Status, the following recommendations are presented:

1. To conduct a survey of all CCC faculty/staff to assess the status and needs associated with administrative computing.

Part III: Administrative Computing

Administrative Technology Vision

Technology in the form of electronic transfer and storage of information is a driving force in the every aspect of modern day living. Government, industry, business, science, education, and other institutions are affected by the computer and other pieces of information technology.

Central Carolina Community College's vision for administrative information technology is to utilize electronic technology to the fullest extent, giving faculty and staff the tools that they need to serve students in the best possible manner.

Appropriate Technology Applications

Central Carolina Community College supports many software applications for administrative use. This includes multiple versions of the Windows Operating System, including Windows XP, 7, 8, and 10. We also support Linux/Unix, Microsoft Office 2007, 2010, and 2013, Internet Explorer, Edge, Mozilla, Firefox, Google Chrome, Opera, and Safari.

Business Office Software

The North Carolina Community College System provides administrative Software that all colleges may use to satisfy operational needs. The Business office uses the CIS system for this functionality. This software is supported on a continuous basis.

Student Development Services

The North Carolina Community College System supports administrative Software that all colleges may use to satisfy operational needs. The software is called Colleague. Some of the areas within the CIS system are as follows:

- Human Resources
- Accounts Payable
- Purchasing
- Employee Benefits
- Accounts Receivable/Cash Receipts
- Curriculum Management
- Faculty Information
- Admissions Management
- Academic Records
- Registration
- Financial Aid
- Core Demographics Conversion
- Common Course Library Curriculum Standards
- Program Design and Approval
- Program Auditing
- Research and Institutional Effectiveness
- Development Education Reporting
- Literacy Education
- Human Resources Development
- Fire Certification
- Regional Calendaring
- Small Business Center
- New and Expanding Industry Training

Help Desk

Central Carolina Community College currently supports approximately 1688 academic computers in 22 different locations in Lee, Harnett, and Chatham Counties. These computers along with an additional 459 administrative computers are supported on a daily basis. The Information Technology Department provides the following:

- Software patches, updates and upgrades
- Hardware upgrades and repairs
- System cleans and configurations
- Computer installs and re-images
- Password guidance and resets
- Telephone setups, guidance and resets
- New employee setups and exit employee cleans

The Information Technology Department provides a central point of contact for employees experiencing problems with college owned computer hardware, computer software, or telephones.

Helpdesk Procedures

When technical assistance is needed, the user may dial the helpdesk at extension x7397 or email the helpdesk at helpdesk@cccc.edu.

Helpdesk Hours:

Monday – Thursday 7:45 a.m. – 5:00 p.m.

Fridays 7:30 a.m. – 3:30 p.m.

Recommendations – IT Department

Based on the Current Status, the following recommendations are presented:

1. Integrate students into Active Directory
2. Replace WebAdvisor with Self-Service application
3. Install Document Imaging Software platform for Student Services, integrating with current ERP
4. Create test environment for network and server platforms
5. To conduct a survey of all CCCC faculty/staff to assess the status and needs associated with administrative computing.
6. Hire additional staff to support increasing demands.

Part IV: Technology Training

CCCC Training

The roles and responsibilities of all CCCC faculty and staff have and will continue to evolve. All individuals must continually upgrade their skills to remain current in their profession. CCCC must be committed to developing systematic training programs that will not only address basic computer competencies but also advanced and upgraded skills as needed. The College must also be committed to making sure that the financial support for this training is provided and included in the normal planning process.

Central Carolina Community College is committed to technology training of both faculty and staff. The College demonstrates this commitment to training by assigning the Director of Organizational Development to plan and provide professional development options for all employees.

Recommendations – Technology Training

1. To conduct a survey of all CCCC faculty/staff to assess the status and training needs associated with administrative computing.
2. In response to the survey results, develop a professional development plan that will meet the needs identified.
3. To develop on-line training modules for all faculty/staff.
4. To develop an incentive plan for faculty/staff to encourage and reward advanced technology training.
5. To develop an incentive plan for faculty/staff willing to participate in train-the-trainer sessions and in peer tutoring/teaching.