



UNIVERSITY OF COLORADO AT COLORADO SPRINGS

2006 Information Technology Strategic Planning Report

January 26, 2006

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Table of Contents

University of Colorado at Colorado Springs’ IT Strategic Planning Process.....	4
Recommendations of the 2006 IT Strategic Plan	5
Educational Technology	5
Web-based Student Services.....	5
Network.....	5
Central Coordination and Communication	5
Evaluating the Impact of the Strategic Plan.....	7
IT Strategic Planning Process	8
Introduction.....	9
2005 IT Strategic Vision.....	10
Key Area #1 – Educational Technology	10
Key Area #2 - Integrated Web-Based Services	10
Key Area #3 - Effective IT Support of Campus Network	11
Key Area #4 – Centralization, Effective Coordination and Communication about IT Resources	11
Current Situation (Trends)	12
Introduction.....	12
General technology trends	12
Specific higher education IT concerns.....	12
Specific University of Colorado at Colorado Springs Trends	13
Chapter 1: Educational Technology.....	14
1.1 Educational Technology Support.....	16
Discussion of the Recommendation.....	16
Required Involvement.....	16
Funding	17
1.2 Instructional Facilities.....	18
Discussion of the Recommendation.....	18
Steps.....	20
Required Involvement.....	20
Expected Costs.....	20
Funding	21
1.3 Information and Information Technology (I/IT) Literacy and Fluency.....	22
Discussion of the Recommendation.....	22
Steps.....	23
Required Involvement.....	23
Expected Costs.....	23
1.4 Learning Management Systems (LMS).....	24
Discussion of the Recommendation.....	24
Required Involvement.....	25
Expected Costs.....	25
Funding	25
1.5 Research Computing.....	26
Chapter 2: Integrated Web-based Services	28
2.1 Web-Based Student Services	29

Chapter 3: Networking – General	32
3.1 Networking – Wireless	35
Chapter 4: Central Services	37
4.1 E-mail.....	38
4.2 IT Security	41
4.3 Software and Software Licensing	44
4.4 Next Generation of SIS (Student Information System)	47
4.5 Web-based Services Infrastructure Strategy	49
4.6 Assistive Technology and Accessibility	52
Evaluation Matrix	54
UCCS Faculty IT Survey 2005 REV042705: Survey Summary Detailed Report with Write-In Responses.....	57
UCCS Student IT Survey SP05: Survey Summary Detailed Report with Write-In Responses ...	60

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Executive Summary

University of Colorado at Colorado Springs' IT Strategic Planning Process

The IT Strategic Planning process examines plans and priorities for the use and support of information technology in support of the mission of the University of Colorado at Colorado Springs. Like IT predecessor, the campus's 2006 IT Strategic Plan combines high level strategic planning with some degree of tactical planning. The campus has undertaken this strategic planning process for several reasons:

To establish plans and priorities for the use of IT on campus

To create greater cross-campus understanding of and involvement in IT issues

To fulfill requirements established by the Colorado Commission on Higher Education

The campus last engaged in an IT strategic planning process in 2000. The resulting plan led directly to action and significant changes to the campus's IT environment, including the establishment of:

A four-tier model for campus IT support

Since that time, the campus's IT infrastructure has matured greatly, and the campus's needs have also changed, which is reflected in the two plans:

2000: emphasis on IT resources and infrastructure

2006: emphasis on academic and administrative IT service

Recommendations of the 2006 IT Strategic Plan

The ITP process is notable for considerable information gathering, including surveys of a wide range of faculty, staff, students, and campus leaders. This process has defined the focal points of the plan:

- Developing and enhancing programs and support for educational technology, including hardware, software and staff support, technology-enhanced facilities, and information and information technology literacy programs for students
- Improving and greatly expanding web-based student services
- Maintaining and further developing the middleware layer of the campus's infrastructure, including security, and access and authorization
- Improving coordination, communication, and governance of campus IT resources

Of the specific recommendations presented in the plan, several are deemed to be of highest priority. They are listed here in unranked order.

Educational Technology

- Establish a well-communicated and coordinated educational technology support model for instructional design and advanced technological and pedagogical innovation, as well as for course content and course management and organization
- Establish campus-wide goals and programs for information and information technology (I/IT) literacy for students, and facilitate the creation of goals for discipline-specific I/IT fluency
- Provide coordinated and broad support and services for digital media and videoconferencing
- Develop an effective scheduling process for, improve support to, and upgrade existing technology-enhanced instructional facilities
- Develop a robust, unified, and supportable web-based learning management system infrastructure capable of supporting every course at University of Colorado at Colorado Springs

Web-based Student Services

- Provide excellent, unified web-based student services that are tailored to individuals based on their affiliation with University of Colorado at Colorado Springs in the form of a campus student portal

Network

- Address IT security issues, including network and data integrity and reliability, and proactive IT security management.
- Provide enhanced e-mail services to all faculty, staff, and students

Central Coordination and Communication

- Centrally coordinate specific aspects of IT to achieve efficiency and decrease duplication (e.g., wireless, security); centrally manage other aspects to achieve reliability and stability of the campus IT infrastructure
- Communicate IT resources availability, policies and guidelines, and the roles and responsibilities of the IT Leadership Team and of IT Advisory Council (ITAC) to the entire campus.

Some other important recommendations include:

- Expanding wireless access on campus
- Continued access to assistive technologies
- Provide improved web-based faculty and staff services
- Participate in the system wide evaluation process for the replacement of the Student Information System.

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Evaluating the Impact of the Strategic Plan

An integral element of the implementation of the IT Strategic Plan will be the evaluation of IT impact on the campus and IT infrastructure. The intended impact of each of the recommendations listed above is in the plan's evaluation section, as are the methods that will be used to assess each of the intended outcomes.

The total cost of all the priorities listed in this executive summary almost certainly will exceed what the campus will be able to invest in new IT initiatives over the upcoming four year period. Campus discussion will be needed to prioritize the initiatives further. This discussion will necessarily include the consideration of which initiatives are essential to fulfilling the campus mission at an acceptable level of quality, and which could be deferred even though this may entail a reduced, or unimproved, level of service. This campus discussion also will consider multiple funding sources that are possible for these initiatives, including campus general fund support, support from fees including re-evaluation of the current UCCS Student Technology Fee Policy, and departmental contributions in cases where services currently provided by departments are shifted to being provided centrally. The campus may need to realign priorities in the event of mandates—funded or unfunded—from the System, State, or federal government.

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IT Strategic Planning Process

The IT Strategic Planning (ITP) process was initiated by IT Director, Jerry Wilson and Senior Faculty Associate for IT, Jackie Crouch in May 2005.

The overall goal of the ITP process was to develop a comprehensive plan that combines high level strategic planning with some degree of tactical planning to lead to action in five significant areas: educational technology, online services, network, central services, and IT management and leadership. That action will ensure state-of-the art IT resources and services in support of the campus's mission. Previous IT planning efforts, most notably the 2000 ITSP (IT Strategic Plan) provided the foundation for the 2005 strategic plan. In contrast to the 2000 ITP, which focused on IT resources, this current strategic plan emphasizes academic and administrative IT services, reflecting the increased maturity of the campus's infrastructure, and a need to redirect primary attention from IT resources to IT services and the ways those services are provided and communicated to the campus community.

Data was gathered from a variety of sources, including surveys and interviews in support of the 2000-2001 educational technology strategic planning process. Data collection efforts that were undertaken specifically for the 2005 process include:

- Faculty Survey (spring 2005)
- Student Survey (spring 2005)

During summer and fall 2005, the existing IT Strategic Plan was reviewed. Upon completion, the report will be approved by IT Leadership Team and the IT Advisory Council, distributed to the campus at large, and presented to key groups on campus, including the Chancellor's Strategic Committee, UCCS Faculty Assembly, and the Student Government Association.

Introduction

The University of Colorado at Colorado Springs's vision statement follows:

We will provide a public undergraduate education unexcelled in the state and selected excellent graduate programs.

CORE VALUES

EXCELLENCE: We will attract, develop and retain outstanding faculty, staff, and students, and focus on those programs and services that we can offer at an exemplary level.

STUDENT SUCCESS: We will help traditional and non-traditional students succeed in their academic endeavors by assuring a stimulating, supportive, safe, and naturally beautiful setting. Campus residence halls will enrich students' experiences by providing a living-learning environment. We will encourage students to recognize their responsibility to participate fully in their own educational success and to contribute to the quality of campus life.

ACCOUNTABILITY AND PUBLIC COMMUNICATION: We will make known our vision, values, and goals and provide a demonstrated return on investment to the citizens of Colorado. We will link the university more closely to the communities we serve. We will reflect a positive, unified, and consistent campus image and communicate the value of the university to the citizens and elected leaders of our state, alumni, and potential students everywhere.

ENRICHING ENVIRONMENT: We will aggressively seek the development of a multicultural campus environment in which each person contributes unique talents to make the university a better place and in turn is fully valued and supported. We will reaffirm the tradition of shared governance and encourage all members of our campus community to join together in creating a positive working environment where all enjoy respect, fair treatment, and a voice in campus decisions.

QUALITY TEACHING: We will demonstrate the highest regard for teaching excellence and will reward quality teaching. We will strive to maintain predominantly small classes taught by dedicated and accessible full-time faculty and other qualified professionals.

RESEARCH AND CREATIVE WORK: We will promote and reward research and creative work that advances knowledge, that makes a valuable contribution, that enhances our teaching and service missions, and that encourages collaboration between undergraduate or graduate students and faculty.

SERVICE: We will attract and reward members of the campus community who place a high value on service and who are committed to contributing their expertise to the university and the public good.

STAFF CONTRIBUTION: We will value the vital role that staff play in supporting and enhancing the educational mission of the university.

INNOVATION AND CHANGE: We believe that universities both preserve the past and help create the future. We will encourage innovation in teaching, research, and service and prepare our students to succeed in a rapidly changing global and technologically advancing environment.

LIFE-LONG LEARNING: We will commit to serving our students at many points along life's path-- during and after high school, as they enter the work force, as they retrain for new careers, and as they continue to learn and grow throughout their lives.

The University of Colorado at Colorado Springs computer and network resources support that vision by providing state-of-the-art IT resources, innovative educational technologies, and an array of IT services and support. The University of Colorado at Colorado Springs campus has engaged in comprehensive strategic planning processes that are the keystone of the development of the campus's IT environment. University of

Colorado at Colorado Springs 2000 IT strategic planning process provided the blueprint for building out a solid, accessible IT infrastructure. The hallmark of this current strategic plan is IT emphasis on academic and administrative IT services.

2005 IT Strategic Vision

Over the past several years, technology has been developing at ever-increasing rates; concurrently, faculty, student, and staff expectations of the campus's IT environment, resources, and their support structures have risen, and will continue to do so. Faculty increasingly rely on robust and effective educational technology tools to enhance teaching and research. Students expect mobility, flexibility, and customization in their use of IT for classes, and in their electronic administrative interactions with the university. Staff desire specific, timely, and accurate information to support their work. Even with the improvements to the campus's IT environment over the past four years, including increased levels of support, faster networks, and greater access to educational technology, campus users expect ever greater performance from the campus's computing and network resources. University of Colorado at Colorado Springs is responding to these varied expectations by articulating an IT vision that focuses on:

- Educational technology use and support; and student information and IT literacy
- Providing integrated web-based IT services to faculty, students, and staff
- Improving the coordination of critical elements of the campus's IT environment with the campus 7-year plan
- Improving communication about IT resources to the campus community

Integrating the components of this vision into University of Colorado at Colorado Springs academic and administrative IT landscapes will help meet growing expectations of faculty, students, and staff, and will contribute to the "Culture of Excellence" called for in the University Vision.

Key Area #1 – Educational Technology

The IT strategic planning process has made it apparent that each school, college, and department has significant educational technology needs and uses, many of which are increasingly discipline-specific, but concurrently reliant on centrally managed resources. A robust, centrally managed technology and support infrastructure—well coordinated with unit specific support structures—can provide faculty and students with critical IT resources they need, such as:

- Advanced instructional facilities
- Academic digital content
- A robust learning management system
- Comprehensive educational technology support, including desktop and facilities support, production assistance, and instructional design support

Additionally, initiatives such as Information and Information Technology (I/IT) literacy for students will provide a foundation for discipline-specific I/IT literacy goals. The campus must facilitate departmental level planning to better meet both unit-specific educational technology needs and I/IT literacy goals.

Key Area #2 - Integrated Web-Based Services

The web is increasingly the virtual space for the campus community to access information and do IT work. Students rely on web-based student services and course content, staff use web-based applications to complete a wide range of business and work transactions, and faculty access online information and digital content in support of their teaching, research, and creative work. The campus must provide web-based services that fulfill a wide range of needs and that are technically, administratively, and culturally integrated. The campus must strengthen and strategically expand current web-based services for students, faculty, and staff. In addition to being able to access financial aid and registration services, for example, students should be able to access personal calendaring, online course materials, and other services through a single, interactive website. These

services and corollary web-based services for faculty and staff require collaborative efforts by several units across campus, including IT, University Communications' Office of Web Communications, Enrollment Management Services, and many other units that provide student, faculty, and staff services.

Key Area #3 - Effective IT Support of Campus Network

Technological advances and the increasing criticality of security necessitate cross-campus participation and cooperation to ensure reliability of information and effective provision of both central and departmental services. To ensure that all IT resources—including the network, e-mail systems, telephony, and support—are robust, accessible, and reliable, the campus must provide better coordination of critical services, including security, authentication and authorization, directory services, and educational technology support.

Key Area #4 – Centralization, Effective Coordination and Communication about IT Resources

Cross-campus collaboration within a centralized/departmentally-based hybrid IT support model should be a hallmark of the campus' continued provision of effective IT support. Providing coordinated, targeted support close to the user is the means by which the campus must facilitate effectiveness across areas as diverse as educational technology, facilities, central IT and web-based services, and desktop support. For instance, the campus should continue to develop partnerships between IT and academic service unit to provide faculty with a wide-range of educational technology support—from assistance with course web page design to the creation and management of digital media for teaching and research. In addition to providing effective IT support, the campus should continue to provide excellent central IT services and to expand and enhance those services wherever feasible. The campus must continue to provide a suite of central infrastructure services on which the day-to-day operations of the campus increasingly depends, including, for example, e-mail, security, an enterprise directory, and reliable network and telephony services.

Effective communication is critical for IT resources to be broadly accessible, used appropriately and to the fullest, and supported effectively. Communication from both IT and the IT Leadership Team must be targeted and frequent. A comprehensive communication plan ensures that faculty, staff, and students know what IT resources, services, and support are available to them, and where they can access them; that the campus is aware of the appropriate use of academic and administrative IT resources; and that end-users know and understand pertinent information about policies, guidelines, and processes. Effective communication processes using IT resources as a conduit also ensures that pertinent information about critical incidents reaches all end-users.

Current Situation (Trends)

Introduction

Leading global, higher education, and campus technology trends helped shape the 2006 IT Strategic Planning processes. These IT trends contributed to discussions regarding the role technology could play in almost every aspect of the University of Colorado at Colorado Springs campus, whether in the classroom, residence hall, or research lab.

General technology trends

- **Ubiquitous web presence**—technology increasingly provides access from almost anywhere to the Internet, creating a virtual conduit for the individual to connect to a wide range of information as well as to different communities. Additionally, individuals expect access to high-quality, just-in-time information from expert sources
- **Rapid connectivity**—high-speed networks, remote access, and wireless increasingly provide seamless access
- **Increasing freedom with mobile devices**—increasingly, people are choosing portable, small, and wireless devices for their computing needs, which helps them realize unprecedented mobility in information and network access. Additionally, these devices provide more capacity and functionality in a single device
- **24/7 Service Expectations** – individuals anticipate service and support assistance to be 24 hours a day, seven days a week
- **Electronic Commerce**—consumers expect the convenience of numerous products and services to be available via secure online purchase and transaction systems
- **Sophisticated applications**—greater use of more mature, common-platform applications, and easier-to-use multimedia tools, has a great impact on educational technology in areas including course management systems and video editing software

Specific higher education IT concerns

In 2005, the fifth annual Educause survey identified current IT issues affecting higher education.

The top IT concerns of higher education institutions, especially large, public universities include:

1. Funding IT
2. Security and Identity Management
3. Administrative Systems/Enterprise Resource Planning (ERP)/Information Systems
4. Strategic Planning for IT
5. Infrastructure Management for IT
6. Faculty Development, Support and Training
7. E-learning/Distributed Teaching and Learning
8. Governance, Organization and Leadership for IT
9. Enterprise-Level Portals
10. Web Systems and Services

Specific University of Colorado at Colorado Springs Trends

University of Colorado at Colorado Springs continues to have an explosive growth in demands on computing and network resources. Specific data, which reinforces this growth, includes:

- The Student Online Center is now used by most of University of Colorado at Colorado Springs undergraduate students.
- The majority of students enter the University with computer experience and expect desktop computer availability and internet access.
- From 1997 to 2005, Internet traffic on campus has increased dramatically.
- In 2000, very few academic courses had any web-presence. Now, in 2005 many more do.
- The Libraries are increasingly relying on adding digital materials via a subscription service rather than owning the hardcopy periodical and/or journal.
- In 2000, 50% of students had University of Colorado at Colorado Springs e-mail accounts as compared to 100% in 2005.
- In 2000, approximately 70% centrally scheduled classrooms had network connectivity as compared to 95% in 2005.

Chapter 1: Educational Technology

Innovative uses of technology in support of learning and teaching can be found across the entire University of Colorado at Colorado Springs campus. From the creation of web-based teaching modules to in-class technology use, faculty are using technology judiciously and effectively to improve both instruction and student learning.

Even as the use of technology in learning and teaching increases, support of it remains fragmented, and largely not communicated to the faculty who would benefit from it. This chapter provides recommendations for a broad array of educational technology support and services, and recommendations for better coordination and communication of them.

Data from spring 2005 data collection efforts associated with this strategic plan indicate that there are several discrete (but overlapping) facets to educational technology. Understanding these facets is prerequisite to providing the most effective constellation of support and services for the use of technology in instruction and research. Our concept of educational technology on the University of Colorado at Colorado Springs campus includes the following components.

1. Course Content: Although course content is not a facet of educational technology per se, it is the crucial component. All aspects of educational technology support and services must link back to it.
2. Primary Purpose of Educational Technology Use:
 - a. Most faculty members use technology to improve or facilitate *course organization and management*, by putting syllabi on course websites, or by projecting PowerPoint slides instead of using an overhead projector and transparencies. In this type of use, there are few or no changes in teaching practices, which are merely translated to new media; often with increased efficiencies. Several types of support are available to faculty using technology in this way: *production and design* support for basic website development, *facilities and equipment* support in the classroom. *Learning Management Systems* support also facilitates this use of educational technology.
 - b. Some faculty members use technology in ways that require *instructional design* support. That is, they change their teaching practices in response to possibilities offered by current and emerging technologies. For example, a faculty member might create an interactive, 3-D java applet to demonstrate a scientific principle that earlier could have been visualized only statically or two-dimensionally. Some refer to this as accommodative use—faculty enhance their teaching by making changes, sometimes radical, to their teaching practices as they exploit the full potential of new and existing technologies. *Production and design* support also can play a role in this type of use if digital media is a component of this type of educational technology use.
 - c. Any use of educational technology requires thoughtful integration of content, pedagogy, and technology to be effective, which necessitates a close working relationship between uniT and programs that provide educational technology support, and those that provide faculty and graduate student development.
3. Equipment, Facilities, and Faculty Skills: This “nuts-and-bolts” facet of educational technology also requires support, and training. Faculty, and all instructors, need a minimum skill set to bring technology into their teaching: they need to have at least some skill in using hardware and software, as well as the equipment in technology-enhanced instructional facilities. Beyond the minimum, faculty either need a full array of support (such as *production and design*, *instructional design*, and *facilities and equipment* mentioned above) or a full array of skills, which often take an unacceptable amount of time, money, and effort to acquire (time, money, and effort that further detract from other professional activities that are rewarded in tenure and promotion processes, as use of technology in teaching is not).

The types of support that should be provided at University of Colorado at Colorado Springs for effective

and broad use of educational technology include:

1. Instructional Design
2. Media Production
3. Learning Management Systems
4. Facilities and Equipment

Support can come in many forms: traditional help-desk or desktop support, short- or long-term consulting, and training. Currently, many units on campus provide one or more types of support with little understanding among them of which unit does what, for whom, and with what effectiveness. All support and training for educational technology must be closely integrated with existing faculty and teaching assistant development programs. The campus should also continue to provide educational technology services, for cases in which a faculty member or a department prefers to have a service unit complete work in support of teaching or research endeavors, for the production of media, for example.

The theme of this chapter is the need for coordination to provide effective, efficient, and broad services and support for all educational technology uses. Several sections of the chapter are clearly related to this theme:

- Educational Technology Support
- Technology-Enhanced Instructional Facilities
- Learning Management Systems
- Digital Content and Collaboration
- Libraries

Two other sections fall into this chapter by virtue of their academic status (I/IT Literacy and Fluency), or of their reliance on similar services and support structures (Research Computing).

In addition to reflecting on the recommendations put forth in this chapter, the campus also must consider the possibility of incentives for faculty use of educational technology in teaching and research. This includes examining how educational technology use fit into salary, promotion, and tenure reviews, and what resources the campus makes available to help people incorporate educational technology.

1.1 Educational Technology Support

Recommendation: The campus should establish a well-communicated and well-coordinated model to provide both high-level support for instructional design and advanced technological and pedagogical innovation, as well as basic-level support for the use of educational technology in course content and/or course management and organization.

The campus also should establish a centralized, online source of information for faculty and a process of communication with faculty, instructors, and student users about educational technology and the resources available for IT support.

Discussion of the Recommendation

Current Situation

Support and training for the use of educational technology is provided by several units on campus: the Teaching and Learning Center, IT Services, Media Services, the Kramer Family Library and the Writing Center. Although there is some overlap in the services each of the unit provides, there is little knowledge among the units of respective services offered, and less knowledge among faculty and student users of how the support pieces fit together. In addition, little attention has been paid to fully integrating support and training for educational technology with faculty and graduate student development in the areas of instruction and pedagogy.

Rationale

Across higher education, there is an increase in the use of educational technology in teaching and learning. From course websites to the use of digital media, instructors are using technology as a tool to streamline course management and to produce innovations in learning and teaching. With this increase in the use of educational technology comes a responsibility on the part of institutions to provide adequate support for an increasing number and variety of users.

The campus's educational technology support model must be coordinated better and communicated better to provide the current and future support needed by faculty, instructors, and students. All three groups need easy access to information about the resources available for educational technology, the infrastructure within which they can use these resources, the projects their colleagues are pursuing, and the support staff who can help them make the most of these opportunities.

Specific Recommendations Include

- Develop a communication plan and centralized source of information to improve faculty, instructor, and student understanding of educational technology resources and support available on campus.

Required Involvement

Governance & Authority

The Teaching & Learning Center will provide coordinating authority for the support of educational technology.

Required Departmental Involvement & Responsibilities

Campus-wide involvement is needed for effective support of educational technology. Service units that provide support will be responsible for sharing information and coordinating their services as necessary.

Funding

Desktop support and classroom/lab support funding would come from IT general funds, with additional departmental and/or campus funding as necessary.

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1.2 Instructional Facilities

Recommendation: The campus should make effective use of IT existing technology-enhanced instructional facilities through more effective scheduling. The campus should designate some IT-supported computer labs as part-time teaching facilities, and formalize the process for scheduling instructional activities in these specific labs.

To provide reliable, widely available technologies that can be adapted to a variety of teaching and learning situations, the campus should enhance support for technology-enhanced facilities by locating support in proximity to the facilities, and by tailoring the support to the needs of faculty users. The campus also should continue IT efforts to identify, plan for, and fund the renewal and replacement needs of technology-enhanced instructional facilities.

Discussion of the Recommendation

Current Situation

The campus has 50 centrally scheduled classrooms. 34 of these are “Smart Classrooms” that include at least a computer and projection system. Several more such instructional facilities are “owned” and maintained by individual departments. The recommendations in this section concern centrally scheduled classrooms only.

Demand for technology enhanced teaching facilities is growing, and little funding exists to convert traditional classrooms into “smart” classrooms (that is, technology-enhanced instructional facilities that have Internet connections, projection, and other media capabilities). Maintenance and support for smart classrooms are funded with one-time budget requests and from IT’ classroom renovation account. The campus also has 9 IT operated computer labs that are funded, in large part, through student technology fees. Although there is a high level of student computer ownership, the need for these labs may remain constant in the coming years. Student computer labs are used because of their convenience and specialized software. Some are used on an ad hoc basis as instructional facilities. The campus has not increased the number of student labs in the past several years, and there are no plans to do so in the coming years.

Support for computer labs and computer classrooms is mainly provided by IT. Support for centrally scheduled smart classrooms is primarily provided by IT. In a limited number of instances, that support is provided by IT staff located in proximity to the facilities (e.g., in Columbine Hall); otherwise, little support is provided in proximity to technology-enhanced facilities. Training for faculty to learn to use smart classrooms, labs, and computer classrooms is provided formally only in Columbine Hall, Dwire Hall and University Hall. Other training for these purposes is ad hoc.

IT has completed a detailed analysis of the facilities it maintains, and has begun to assess renewal and replacement needs and costs for them.

The campus’ continued funding for the renewal and replacement of technology enhanced instructional facilities is inadequate, and there is no reliable, ongoing source of support for this need. While renewal and replacement for labs is funded from student technology fees, that of classrooms is not. Faculty are generally not involved with strategic decisions about the technologies that are needed in instructional facilities, or about moveable technologies that might enhance the capabilities of bare-bones classrooms (those with no technology enhancements).

Rationale

The demand for technology-enhanced instructional facilities is growing and will likely continue to grow. Faculty at University of Colorado at Colorado Springs increasingly rely on laptops, projection and sound systems, VHS and DVD players, and other technologies to bring media content into the classroom. A smaller and growing group of faculty are teaching classes in computer labs or classrooms and devoting class time to individual student or group work at computer workstations. Anecdotal evidence and some survey data suggest that, while technology-enhanced teaching facilities are in high demand, campus use of them is not efficient. Faculty who need the technology in instructional facilities have no priority over those who do not; therefore, the technology in such facilities is seldom used to IT full potential. Furthermore, faculty who need the technology for only a small percentage of their class meeting times must reserve a technology-enhanced facility for the entire semester.

Some faculty members use student computer labs for teaching purposes. However, this use is not formalized and the standard configuration of the labs does not lend itself to instructional purposes. Anecdotal evidence indicate that support for technology enhanced instructional facilities needs to be physically proximate to the location of the facilities for ease of maintenance and technical stability and reliability. This is currently the case in only a few instructional facilities on campus.

To ensure that there is a close fit between technologies needed and technologies provided, faculty must be involved with strategic decisions about what technologies will be included in which instructional facilities, and about what moveable technologies the campus should invest in.

The campus' continued funding for the renewal and replacement of technology enhanced instructional facilities is inadequate, and there is no reliable, ongoing source of support for this need.

Specific Recommendations Include

Effective Scheduling of Technology-Enhanced Instructional Facilities

IT and the Registrar will collaborate to establish a thoughtful, effective, and equitable scheduling process for technology-enhanced and computer classrooms, in part by adding the need for technology enhancements to the Registrar's list of priorities for classroom scheduling.

Use of Student Computer Labs for Instructional Purposes

IT and the Office of AVCAA will work with appropriate student groups and student fee committees to develop guidelines and procedures for the instructional use of student computer labs that are equitable and sustainable, recognizing both faculty and student needs and expectations. These guidelines will formalize the use of some computer labs as instructional facilities for a limited number of class meeting times per week.

Effective Support of Technology-Enhanced Instructional Facilities

IT will work with schools and colleges to determine the most effective model for providing support for technology-enhanced instructional facilities. This model will locate support in proximity to the instructional facility wherever feasible.

Renewal and Replacement of Technology-Enhanced Instructional Facilities

IT will continue IT work on the renewal and replacement of centrally-scheduled, technology-enhanced instructional facilities and will continue to search for ongoing funding for the maintenance, renewal, and replacement of those facilities.

Steps

Implementation

Effective Support of Technology-Enhanced Instructional Facilities

- IT will work with schools and colleges to determine the most effective model for providing support for technology enhanced instructional facilities.

Renewal and Replacement of Technology-Enhanced Instructional Facilities

- IT will work with ITAC to evaluate the nature, quantity, and quality of campus instructional facilities and the emerging technologies installed in them. Moveable technologies (e.g., laptop carts and portable projectors) will be considered at this time.
- IT will complete IT renewal and replacement schedule for technology-enhanced instructional facilities and develop a cost model that recognizes the true costs associated with providing and maintaining computer labs that are used for teaching.
- IT will continue to fund staff to support basic instructional use of smart classrooms, labs, and computer classrooms.

Communication

Effective Support of Technology-Enhanced Instructional Facilities

- IT will develop a communication plan for informing faculty, schools, and colleges about the support available for technology-enhanced instructional facilities.

Required Involvement

Governance & Authority

- The IT Leadership Team, in consultation with IT and UCCS Student Government Association (SGA)
- Decisions about technology enhanced teaching facilities will be made with input from ITAC.

Required Departmental Involvement & Responsibilities

- Associate Vice Chancellor for Academic Affairs
- IT Management and Departments, specifically
- Representatives from the faculty
- Registrar and departmental scheduling liaisons
- Deans of the schools and colleges
- SGA student representatives
- IT Advisory Council (ITAC)

Expected Costs

Annual IT Infrastructure Investment

- To be determined after analysis of facilities and cost of support
- Renewal and replacement for classroom facilities is \$500,000 over the next four years.

Operating and Maintenance

- To be determined after analysis of facilities and support costs

Personnel

- To be determined after analysis of facilities and support costs

Funding

The campus should think strategically about diverse funding sources, including central general fund accounts, student technology fees, schools and colleges, the state legislature, and corporate funding for the renewal and replacement of technology enhanced instructional facilities.

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1.3 Information and Information Technology (I/IT) Literacy and Fluency

Recommendation: The University of Colorado at Colorado Springs campus should establish specific goals for information and information technology (I/IT) literacy, and should facilitate the creation of discipline-specific goals for I/IT fluency for students. The literacy goals should be the responsibility of the campus as a whole; the fluency goals should be formulated and implemented by particular disciplines and departments.

Discussion of the Recommendation

Current Situation

Universities have long worked to ensure that their students are knowledgeable and educated--able to identify the need for information, to know where to find it, to evaluate critically what they find, and to use it effectively and creatively. That is, universities have always taught what we call information literacy. Today, rapid technological change and an explosion of information resources create a plethora of new technology tools, applications, and resources. This current complex information technology environment has led universities to re-evaluate the ways in which they are educating their students in information technology literacy as well as in information literacy.

Rationale

In order to best prepare our students in an increasingly technological age, a need exists to examine our standards for information literacy, promulgate goals for information technology literacy, and encourage departments to develop I/IT fluency goals, which are pertinent to their specific discipline. These goals are linked abilities: To be information literate today, one must be able to access and utilize IT appropriately. The ability to access and utilize IT is of little consequence unless one can use it critically and creatively.

Specific Recommendations Include

- University of Colorado at Colorado Springs students, by the time they complete their first-year at the University, will be I/IT literate, or have the ability to be proficient in new technology applications as they become available for learning and the production of knowledge. These abilities are needed across disciplines, and make up part of the education of any well-rounded University of Colorado at Colorado Springs student. The I/IT literacy goals should be uniform and common across the UCCS campus.
- University of Colorado at Colorado Springs students, by the time of graduation, will be I/IT fluent, or have those more advanced abilities that may be specific to particular disciplines or groups of disciplines, or to higher levels of learning. The I/IT fluency goals should be designed specifically to meet the particular needs of students following particular paths of study, and should be forward-looking in the sense that they supply students with the requisite skills, concepts, and capabilities for at least the entry-level of their chosen careers.

Steps

Implementation

- The faculty will be the primary developers and decision-makers regarding I/IT literacy and fluency goals.
- The next steps for IT literacy are to refine the goals, and to determine the extent to which they may be met by the end of a student's first-year. This will be achieved by determining the IT abilities that students have upon enrollment at University of Colorado at Colorado Springs; by understanding what IT skills, concepts, and capabilities are taught in commonly taken first-year courses or can be obtained in non-credit IT instruction offered by IT, and by identifying what IT abilities students must master in order to succeed in their first-year courses.

Next steps include

- Survey a random sample of incoming first-year students in fall 2006 to assess their of IT literacy
- Convene a faculty group in spring 2007 to review, revise, and adopt I/IT literacy goals, and determine the ability of the campus to enable all first-year students to achieve these I/IT goals through existing courses (this includes focused advising on which core courses will result in students attaining mastery of I/IT literacy goals in which they are not already proficient) and support offerings from IT, the libraries, and other appropriate areas.

The I/IT fluency initiative will be more fully explored after the IT literacy steps taken above are completed.

Required Involvement

Governance & Authority

The faculty will be the primary developers and decision-makers regarding the IT literacy and fluency goals.

Required Departmental Involvement & Responsibilities

Campus-wide involvement is needed for successful implementation of I/IT literacy and fluency goals

Expected Costs

Operating and Maintenance

A potential need for additional IT resources and support may arise depending on the IT literacy goals defined by the faculty group. Additional resources might be needed for evaluation and assessment of this initiative.

Personnel

Not enough information at this time to determine personnel needs for the IT literacy goals.

1.4 Learning Management Systems (LMS)

Recommendation: Develop a robust web-based learning infrastructure capable of supporting every course at University of Colorado at Colorado Springs, and one that adheres to the following principles:

- **Enhances the learning experience for students**
- **Presents a consistent and branded resource for both students and faculty that integrates with centralized web-based student services**

Discussion of the Recommendation

Current Situation

IT currently supports several course management systems including WebCT (Standard Edition used by the Chemistry Department ONLY on a limited license), e-College (both e-Course for fully online courses – at a cost of \$47 per student enrollment per semester and e-Companion for on-campus courses – currently free of charge to the UCCS campus), and CyberClass (used by the Writing program ONLY).

WebCT usage is constrained by the hardware, human and fiscal resources available to support it. IT currently allocates approximately .05 FTE which is sufficient at current usage levels to support the application from a systems administrative perspective. Support for faculty usage of WebCT is insufficient.

e-College's e-Course product provides 24/7 faculty and student support through a Denver telephone number and/or e-mail support with the Teaching and Learning center providing one-on-one Faculty training on an as-needed basis. There is very limited support for the e-Companion product and is provided through 1 of 4 main e-College campus administrators on an as-needed basis without compensation to these individuals; basically being performed on a volunteer basis. The campus pays for the e-Companion "iSupport" which allows the campus administrators to call the 24/7 help desk to resolve issues with e-Companion. As with WebCT, support for faculty usage of e-Companion is insufficient.

Because of the current offerings, some campus faculty members create and deploy their own course web sites and may choose to continue to do so, regardless of the campus solutions offered. Support for these sites is varied. In some cases, departmental staffs provide a high level of support for the department's web presence, as well as system administration for departmental web servers. In other cases, support is minimal or not available. Concerns about these sites include the lack of available professional support, and the lack of adequate security.

Specific Recommendations Include

- Find a single robust LMS for the UCCS campus to eliminate inefficiencies related to support and faculty training and student use of 3 discreet systems (WebCT, CyberClass, e-College)
- For academic year 2005/06 maintain the current support for WebCT and CyberClass.
- Engage in a system requirements definition process relying upon faculty and student input to delineate functional needs. The end result will be a set of functional specifications that can be used to determine future direction.
- Utilize ITAC to provide counsel and advice for future strategic directions.
- Continue to actively research the various CMS/LMS systems to understand capabilities and determine the appropriate strategic direction for the campus.
- Plan an LMS architecture that supports the teaching and learning objectives of the campus. In addition, the vision for LMS should be effectively communicated to manage expectations of availability, capacity, and reliability.

- Select an LMS direction for the Colorado Springs campus that will take the campus to the desired destination of student web services that enhance learning.

Required Involvement

Governance & Authority

Vice Chancellor of Academic Affairs
IT Leadership Team
IT Advisory Council

Required Departmental Involvement & Responsibilities

- IT will provide the application support for WebCT and CyberClass
- UMS to provide support for integration with the SIS

Expected Costs

Expected costs cannot be determined until the in-depth analysis is conducted

Funding

Current IT funding for personnel needs to be augmented by campus resources such as the General Fund.

1.5 Research Computing

Recommendation: Facilitate distributed research computing through the provision of the following service to interested research groups:

- High capacity networking access enabling connectivity to national supercomputing sites such as "[Internet 2](#)"

Discussion of the Recommendation

Current Situation

University of Colorado at Colorado Springs features research centers and institutes, some of which rely on high performance computing for intensive data analysis and simulations.

Many departments recognize unmet needs for better researcher access to both national high performance computing sites and for graduate student access to high performance computing resources for instructional purposes. At present, there is insufficient knowledge of the extent of high performance computing on campus, and no consideration has been given to whether there might be benefit through the coordination of equipment, space, or support.

Rationale

Through judicious use of grant money, several departments and institutes on campus are meeting their computing needs. Although unit feel strongly that the control of computing clusters should be local, there may be a need for at least two centrally-provided, for-fee support services: shared central space and centrally-provided operational support, including data back-up and hardware/software support. There is typically little space in departments to expand or to build new computing environments; space used for this purpose means less space for offices and for more broadly accessible classrooms and labs. Additionally, unit and researchers find it difficult to back-up and store computing data effectively. They recognize that providing this service centrally might result in efficiencies and quality of service that are not feasible at the departmental level.

Specific Recommendations

- Consider the provision of centralized space for departmental computing needs.
- Consider the provision of central, for-fee operational support (e.g., data back-up and hardware/software support) for departmental computing needs.
- Provide, on a for-fee basis, a higher capacity networking connectivity than the campus norm for University of Colorado at Colorado Springs researchers who require this capacity.
- Provide centralized support for distributed on-campus research computing on a fee for service basis.

Steps

Implementation

- Assess the current research computing environment, as well as the near-term need for departmental and institute computing equipment. During this assessment process, the campus should determine the optimal model, including fees, for centrally-provided operational support of high performance computing. It also should identify the departments that would be most likely to relocate their equipment to a central space and/or use centrally-provided support for research computers, and work with them throughout the remainder of the implementation process.
- If there is interest in housing some research computers centrally, secure adequate and accessible

space for the relocation of some of the campus's departmentally-based research computers, and ensure adequate bandwidth to and from sites remote from researchers

- If there is interest in supporting some research computers centrally, develop a for-fee operational support model for centrally and departmentally located research computers. Address bandwidth, storage space, and operational support processes during this stage.
- Integrate the support of any central physical space for high performance computing, and of any operational support such as data back-up and/or hardware and software support into the 4-Tier IT support model of IT.
- Work with the Office of Contracts and Grants (OCG) to address any overhead/infrastructure issues that may arise vis-à-vis grants and central high performance computing service fees.

Required Involvement

Governance & Authority

The IT Leadership Team, Associate Vice Chancellor for Research, IT Advisory Council, Faculty Assembly

Expected Costs

Annual IT Infrastructure Investment

- Dedicated space TBD
- Bandwidth to and from remote site TBD
- Server(s) for data back-up and storage TBD
- Network Service TBD

Personnel

- Scheduling and maintenance of centralized space: TBD
- Management of operational support: TBD

Funding

Funding will flow from grants directly to IT in the form of fees for operational support.

Timing

The assessment of the campus's high performance computing environment should take place fall 2006, with the possibility of a pilot program for centrally located high performance computing cluster space by spring 2007.

Chapter 2: Integrated Web-based Services

University of Colorado at Colorado Springs is in the position to take full advantage of new and emerging web technologies to provide a virtual, one-stop shop for university services, from registration and online ticketing, to calendaring and procurement.

Data from and surveys indicate that the campus should move toward a portal strategy that will facilitate student, faculty, and staff access to the academic content and the academic and administrative services they need.

The primary challenges of providing web-based services for the campus are less technical in nature than cultural. Although there is broad conceptual support for creating a cohesive interface for accessing discrete services provided by multiple unit, the campus will need to provide leadership and support to facilitate cooperation by unit that have worked independently in the past.

Security and privacy drive the technical basis necessary for successful web-based services initiatives. Recommendations for web-based services that are common to both sections of this chapter include:

- Academic, student, and administrative services should be accessible through the web and tailored to users
- To accomplish this, a standard portal framework should be implemented
- Steering committees should provide strategic direction and tactical buy-in for web-based services

Due to demand, the campus is implementing a student portal first, followed by a faculty and staff portal as resources permit. Strong collaborative leadership from the Vice Chancellor for Student Success and from the Vice Chancellor for Academic Affairs will be required for a successful implementation of both.

2.1 Web-Based Student Services

Recommendation: Provide excellent, unified web-based student services at the University of Colorado at Colorado Springs in the form of a campus student portal.

To achieve this recommendation, four components are required:

- 1. Cross department collaboration**
- 2. Student involvement**
- 3. Selection of appropriate technology**
- 4. Allocation of sufficient funding**

Discussion of the Recommendation

Rationale

Personal Look-Up Services (the Student Online Center) are now used by the majority of University of Colorado at Colorado Springs undergraduate students on a regular basis. While the Student Online Center as a student service is highly successful, it is based on outdated technology, proprietary programming language, and it can no longer be expanded to include the new services that students want and need. In addition, the campus must develop better security, reliability, and scalability through new software for IT web-based services.

The Student Online Center and web-based services provide convenience by providing answers to routine and simple student service questions. While a web-based environment augments and enhances the student service experience, it does not take the place of meaningful, in-depth interactions between faculty and students, and staff and students. Developing a robust, unified, online student portal would allow more time for substantive interactions between students and the university. Ideally, a web-based student service infrastructure would be matched by an actual physical, centrally located service center.

Current funding of the campus's centralized student web services is inadequate. Although there is a modest general fund allocation for web-based student services, There may be opportunities through consolidation of multiple services to create a financially efficient service model.

Specific Recommendations Include

1. Build on the success of the Student Online Center by strengthening and strategically expanding the services available on a single, student-centered web site.
The Student Online Center currently allows numerous separate transactions from the Bursar, Financial Aid, the Registrar, Student Health Center, and IT. Other services from departments such as Housing, Orientation, Libraries and Advising are vital to student success at UCCS and should be considered for the new, unified service site as it is developed. New services requested by students, including personal calendaring, online ticket purchases, announcements and academic alerts, would be appropriate additions to a portal. Other services, important to smaller populations, should be expected to meet campus-wide programming standards in order to be available to students on the central site. These other services might include Parking Management permit purchases, Student Academic Services Center workshops or tutoring information, study abroad applications or information, and telecommunications checkout processes.
2. The campus also needs to keep in mind that some faculty and staff need to be able to see the same view of academic and financial records that the student sees. As new student web services are developed, the campus should keep faculty/advisor access to information in the student portal as a goal. To support the development of this next generation of Student Online Center, a collaborative, interdepartmental structure is required to set policies, identify criteria and develop processes, priorities, and designate responsibilities by which services are added to and maintained in this new web site. This structure must work with other systems and system owners

to ensure success.

3. Web development of services requires input from many different sectors: content providers, both service and academic departments, technology specialists from IT and UMS, and web specialists and designers. These offices are in different divisions, yet need to work together closely to create the best service for students.
4. Develop a standard portal framework and infrastructure utilizing open, non-proprietary, component-based, reusable standard modules to support unified student services on the web.
5. Review and reassess the current levels and distribution of student fees and general and auxiliary funds in support of campus and university technology to assure adequate funding of all aspects of the development and maintenance of web-based student services.

Required Involvement

Governance & Authority

Leadership and guidance need to be provided by the appropriate authority, specifically in the Office of the Vice Chancellor of Student Success, and the Office of the Executive Director of University Relations. Their leadership would acknowledge and encompass student services and communications provided by all departments on campus, not just those in student affairs.

Required Departmental Involvement & Responsibilities

A shared commitment to a unified student web services site by all service providers is required. The collaborative effort between student information providers, IT, and Web Communications.

The following is a partial list of departments, divisions, and existing committees, which have interest in, or control over, some aspect of student services on the web:

- Student Affairs, Enrollment Management and the departments within this division
- Academic Affairs, College and School Dean's offices, advising, and libraries
- Administration, particularly Parking Management
- Budget and Finance, particularly the Bursar's Office
- Extended Studies
- UCCS Student Government Association
- Information Technology
- UMS and System Administration
- University Relations, particularly Web Communications
- UCCS Campus SIS Working Group
- IT Advisory Council

Expected Costs

Annual IT Infrastructure Investment

Hardware infrastructure needs to be robust, redundant, fault-tolerant, and capable of supporting the entire Colorado Springs campus student population during the heaviest usage period of fall enrollment. The hardware should be on a three-year replacement cycle.

A recent Gartner study states, "Although many enterprises think that the major costs of the portal go into the product acquisition and initial release, those that have done their homework recognize that the long-term TCO of the portal is driven more by the subsequent customization work."

Personnel

Commitment to open, platform-neutral, standards-based computing helps lessen the up-front costs, but increases the campus's reliance and dependency on well-trained IT professionals who understand leading-edge technologies. In addition to technological upkeep, web sites need updating, revising, and retirement in the same way as paper publications. The positions listed below would not all be in IT.

- An ongoing training budget is to be determined
- Cost of site maintenance of content (new or reallocated) to be determined
- 1 FTE for portal technical administration
- 2 FTE for presentation programming
- 1 FTE for content continuance, project management, and planning (portal manager)

Funding

Creating a central, unified area for services to the campus requires a stable source of centralized funding. This funding should be allocated from a number of areas.

Current general funds in involved and responsible departments should be reviewed for appropriate allocation toward the goal of unified web services. Funding for web-based student services has not kept pace with volume of student usage and the number of student services that have been shifted to the web. If a web process replaces an in-person or paper process the funding should be reallocated to support the web process costs.

The distribution of student technology fees should be reassessed to assure adequate funding of the development and maintenance of web-based student services. The campus should investigate the need for an increase in student fees to support web-based student services.

Chapter 3: Networking – General

Recommendation:

1. Increase the bandwidth available to the campus
2. Strengthen the availability and reliability of the network
3. Expand remote access to campus and networked resources

Discussion of the Recommendation

Current Situation

The campus core network currently supports 1 Gbps links throughout the backbone connections, all the way out to the switches that connect customer systems. These switches support 10 Mbps and 100 Mbps switched Ethernet connections to customer systems.

The Colorado Springs campus currently subscribes to 20 Mbps of commodity Internet access via the Front Range GigaPOP (FRGP), though a more realistic number would probably be 30 Mbps. A large part of the growing use of the Internet is related to file sharing of music and other entertainment applications. Currently, IT limits much of the entertainment uses of the Internet so that academic uses are not overwhelmed.

The campus network core currently has sufficient redundancy to be able to function in the event of many single point failures in the core campus backbone. However, the campus is entirely dependent upon the FRGP for IT access to commodity Internet.

IT currently supports dial-in modem service. Although we have seen as many as 168 simultaneous modem users, the users of those modems do not get busy signals, even in peak usage times.

Rationale

Popular discussion suggests that the demand for global Internet access doubles every 18 to 24 months for the Colorado Springs campus. Thus, in five years, the expected commodity Internet bandwidth demands will be about 100 Mbps. More and more functions of the university in general, and the Colorado Springs campus in particular, depend upon the reliable operation of the network, not just across campus, but also to the global Internet. Essential network services (such as the Domain Naming System (DNS), the Dynamic Host Configuration Protocol (DHCP), and authentication and authorization services need to be available at all times.

As the campus expands IT firewall capabilities at the campus border, the demand for more complete and authenticated access from the global Internet will grow. Such a demand is usually met with a Virtual Private Network (VPN) service. IT is currently using a VPN service as more people use their own ISP for access to the Internet and to campus networked resources.

Specific Recommendations Include

- Continue to provide incremental increases in commodity Internet bandwidth to accommodate demand
- Isolate building traffic using layer 3 routing
- Increased segmentation within buildings
- Continue to offer services in support of advanced networking applications
- The campus must place more emphasis and support on the reliability of IT network access and

services

- The campus should have at least two separate connections to the commodity Internet with service coming into the campus at two different locations
- The campus should invest in more reliable power (i.e., electrical generators) for key locations on campus where essential networking services are provided
- Continue to provide modem services to the campus customers
- Build the Virtual Private Network (VPN) service as demand requires
- Provide support for mobile computing environments, particularly with respect to wireless and mobility issues
- Enhance network security

Steps

Implementation

- Continue to monitor the bandwidth demands made by the campus and make incremental upgrades to the campus core and to add bandwidth to support increased use of the commodity Internet
- Task IT with ensuring that entertainment uses of the Internet do not negatively impact the academic and administrative uses
- Task IT with providing at least two separate connections to the commodity Internet, with service coming into the campus at two different locations.
- As part of IT disaster recovery and business continuity planning, the campus should determine where additional electrical generators should be provided to insure reliable network services in the face of extended electrical outages.
- IT will continue to offer VPN for the campus in general to provide authenticated, secure access to networked resources on campus.

Policy & Standards

Recommend a policy that clarifies that entertainment uses of the Internet must not interfere with the academic uses of the network and charge IT to enforce that policy

Required Involvement

Governance & Authority

Network services for the campus fall under the authority of the Office of the Chancellor with the advice of the IT Leadership Team and the IT Advisory Council.

Required Departmental Involvement & Responsibilities

IT networking will need to continue to manage and maintain the campus network and IT connections to the global Internet.

Personnel

At least two new FTE to meet increasing demands over the next five years

Funding

The funding for these activities will come from existing general fund support for networking. That funding still leaves a substantial funding gap that manifests itself in an overly long equipment replacement cycle, insufficient staffing, less Internet bandwidth than is required to meet the growing demands, a lack of redundancy in access to the global Internet, and less reliability in the face of long power outages.

3.1 Networking – Wireless

Recommendation: Expand and coordinate wireless LAN access across campus in order to meet increasing demands for more mobile access to campus and Internet resources.

Discussion of the Recommendation

Current Situation

The currently supported standard for wireless network access is the IEEE 802.11x standard. This supports 10 Mbps wireless Ethernet service over distances generally limited to 150 feet indoors and up to 1000 feet clear line of sight outside. Devices that support this standard have dropped dramatically in price and are readily available from most computer/network outlets. This has made these devices increasingly popular. The campus is instituting a policy that requires that departments coordinate their wireless access point installations with IT.

Rationale

Wireless network access is particularly attractive in facilitating mobility for the campus community. It is often ideal for common areas such as classrooms, conference rooms, team rooms, and libraries. Wireless is not generally an acceptable alternative to wired connectivity in an office, due to the slower speed, shared media, and less secure service than wired.

Customers often need significant technical support when installing wireless access cards and access points. Wireless network access technology is evolving, and easily within the timeframe of this plan, the campus will see substantial changes in the technology as it moves to higher speeds and coverage that is more restricted. In addition, the campus must work toward offering suitable security that is easy to use.

Specific Recommendations Include

- Implement wireless network access capability across campus, both in public, common places and in dedicated departmental spaces in a coordinated fashion in order to insure that the service is secure and reliable.
- Institute and enforce the wireless policy to ensure that departments that wish to implement network access capability should do so only after consulting with IT.
- Ensure all wireless access to campus network is authenticated and secure.

Steps

Implementation

- The campus, with technical support from IT, is already deploying wireless network access in common areas across campus on a limited basis as funds become available.
- IT already is working with departments to coordinate and even manage their private wireless network access installations.

Communication

- The campus wireless policy must be communicated broadly to the campus
- Implementation plans and schedule must be communicated to the campus through regular website updates, campus bulletins on major milestones.

Policy & Standards

The IT Advisory Council is establishing a policy that requires any 802.11x wireless network installation be coordinated by IT to insure non-interfering use of the available frequency spectrum and to be sure that departmental wireless activities do not compromise broader campus uses of wireless.

Required Involvement

Governance & Authority

Wireless access implementations on campus fall under the authority of the Office of the Chancellor. This responsibility and authority have been delegated to the IT Director for implementing the policy.

Required Departmental Involvement & Responsibilities

- The IT Director and IT Advisory Council will continue to provide guidance and direction.
- Campus departments must coordinate wireless installations with IT.
- Departments will be asked to provide input on the developing demands for wireless network access. Departments may be asked to help fund implementation of campus wide wireless infrastructure.

Expected Costs

Annual IT Infrastructure Investment

Broad campus coverage would require at least \$150,000 - \$200,000 initial outlay. Less than one third of that amount is equipment costs with most of the balance devoted to construction. The campus should expect to replace or add wireless technology each year over the next five years. This requires budgeting estimated at \$25,000 per year for equipment.

Personnel

Continuing support for campus-wide wireless access would require at least one additional FTE.

Funding

Funding for an initial, broad wireless deployment is NOT currently included in the IT Budget. Some funding may be available using student technology fees.

Chapter 4: Central Services

Central services are those that are used by, or affect the campus as a whole, and often require collaboration across multiple units. Traditionally on the University of Colorado at Colorado Springs campus those services have been provided by the central IT unit. In some instances, this mix of central and departmental provision of services has resulted in greater flexibility for departments and the ability for departments to tailor IT services to local needs more effectively. In others, central and departmental services may be redundant at best, competing at worst.

As with recommendations in other chapters, those in Chapter four have security, reliability, and cross-unit collaboration and cooperation as their foundation and top priorities. Recommendations include:

- Enhancement of existing services such as e-mail, the three-tier IT support model, and assistive technology
- Better management of existing services such as software licensing and application standards
- Development of a security and of a web-based services infrastructure
- Coordinated preparation for the next generation of SIS
- Development of best practices, policies, and guidelines critical to the successful implementation of these recommendations

4.1 E-mail

Recommendation: provide e-mail services to all faculty, staff, students and designated affiliates so that e-mail is convenient to access from on and off-campus, easy-to-use, reliable, highly available, and secure. Centrally managed systems must be enhanced to further combat unsolicited commercial e-mail and viruses. The central infrastructure must be augmented to ensure high-availability and redundancy to reduce the need for distributed systems that may be expensive, proprietary, and complex. Key components, including bulk delivery, address lookup and delivery mechanisms should be integrated.

Discussion of the Recommendation

Current Situation

Every student is provided with a University of Colorado at Colorado Springs e-mail account and is personally responsible for reading e-mail sent to them by the University. No similar policy exists for faculty and staff, however they are provided a university e-mail account.

Group and bulk e-mail communication methods are inconsistent, sometimes slow, and often unwieldy to use and manage. E-mail is routinely used to send sensitive information yet most e-mail is sent without any verification of sender and without content encryption. The centralized and departmental costs associated with providing e-mail services on campus are not widely recognized or understood.

Rationale

E-mail has become a ubiquitous means for communication within the campus community and beyond. It is quicker and less expensive to send e-mail than to deliver hardcopy mailings and IT colloquial nature promotes a sense of community unmatched by traditional paper mailings. E-mail has become mission critical and the infrastructure needed to support this function must be further developed and established.

Specific Recommendations Include

- Develop and encourage the use of a reliable and redundant e-mail infrastructure that provides all faculty, students and staff with:
 - Robust, standards-based service that uses secure authentication; the current service includes a full-featured web-based interface requiring no client software besides a campus-endorsed web browser
 - Online access to messages with adequate storage capacity to accommodate the variety of needs and roles of campus constituents
 - Integration with future web-based services offerings, such as a campus portal, for the variety of constituent groups (e.g. faculty, students, administrators, researchers, instructors, etc.).
 - Further develop and promote the centralized campus e-mail gateway for use in processing all incoming and outgoing e-mail; on this gateway perform real-time anti-virus processing and filter unsolicited commercial e-mail.
- Develop and promote mechanisms to enable rapid and efficient delivery of messages to large segments of selected campus populations for both urgent and routine messages

Steps

Implementation

- Establish service level goals for the campus e-mail infrastructure, including the central gateway and central servers, by considering requirements for:
 - Capacity and scalability
 - Redundancy and reliability
 - Universal availability
 - Features, including client software, anti-virus, and content (UCE) filtering
- Design and develop a centrally-managed infrastructure to meet the established service goals
- Perform anti-virus and anti-UCE processing on all incoming and outgoing e-mail by routing all e-mail through the central campus gateway
- Establish an efficient mechanism for delivery of urgent messages to sender-specified populations
- Incorporate security into the campus e-mail infrastructure to provide non-repudiation of sender and recipient identities (to guard against forgery and spoofing), guarantee message integrity, and safeguard message content
- Leverage IT service provisioning infrastructure to provide role-based e-mail identities
- Evaluate needs for campus-wide instant messaging systems

Communication

IT and appropriate campus departments and individuals will collaborate on development of policies and services. Additional communication and input-gathering will be performed via surveying faculty, staff, and students, by talking with campus IT representatives, by offering presentations at committee meetings and other gatherings and by communicating via traditional channels such as e-memos, print media, and hardcopy mailings.

Policy & Standards

- Establish policies regarding anti-virus and UCE filtering on servers that accept incoming e-mail, use of e-mail for official notification to faculty and staff; use of e-mail for distributing sensitive or critical data and requirements for appropriate backup and retention of e-mail
- Establish guidelines and methodologies for administration and management of central e-mail servers

Required Involvement

Governance & Authority

IT Leadership Team
Information Technology Department

Required Departmental Involvement & Responsibilities

- IT Advisory Council to provide guidance and programmatic direction
- Legal Counsel for guidance on policies
- IT to develop and promote service level goals in cooperation with campus departments
- IT to design, maintain, operate, and manage the campus gateway and central e-mail servers
- IT security coordinator and working group to guide development of secure messaging

Expected Costs

Annual IT Infrastructure Investment

Costs include hardware and software needed to deploy a fault tolerant operating environment, including the central e-mail gateway and central e-mail servers, backup subsystems, redundant power environment, and software.

Student fees are used to support the non-personnel costs associated with the central e-mail systems dedicated to students. Ongoing costs are approximately \$25,000 per year and cover operating expenses (server software, hardware maintenance), small capital improvements, and renewal and replacement of existing systems. Fees currently do not contribute to any cost associated with the central e-mail system.

Personnel

Personnel exist within IT to maintain the current e-mail infrastructure as well as IT operation; no new personnel are required. If campus departments choose to convert from the current IT managed e-mail servers to another system, particularly Microsoft Exchange-based services, IT would need an additional 2.0 FTE. Personnel to provide backup subsystems also exist within IT.

4.2 IT Security

Discussion of the Recommendation

Current Situation

The campus is well underway in the effort to develop security-related policies, best practices, and guidelines. However, much of the campus lacks awareness of and understanding of these policies and guidelines. Consequently, system administrators and users often make uninformed decisions that have a detrimental impact on the security and integrity of the campus IT infrastructure and other IT systems.

The University of Colorado at Colorado Springs has recognized the need for an IT risk assessment process to ensure the security and continuity of the University's IT resources. The results of the risk assessment process will help to mitigate vulnerabilities of campus mission critical, IT-dependent services. In addition, data collected and lessons learned from the risk assessment will provide the foundation for setting the future directions for campus IT security. The early stages of the current risk assessment cycle have shown that business continuity planning is lacking at the University of Colorado at Colorado Springs.

Rationale

The increased reliance on IT as part of the university business and academic communications infrastructure requires technical solutions to ensure the integrity and authenticity of electronic communication. Maximum benefit from these solutions can only be achieved if they are implemented under an overall campus strategy.

The reasons to provide secure means for electronic communication are many. While there is no question that e-mail as a delivery mechanism has proven to be easy, economical, and fast regardless of the message content, there are risks in sending sensitive or critical data via e-mail. It is relatively easy for an attacker to capture e-mail thus gaining access to private or sensitive information. Additionally an increasing number of attacks involve social engineering that deceives users by falsified "official" university communications. A campus-wide mechanism to protect both the privacy and integrity of the data is needed.

While desktop anti-virus scanning is still an integral part of worm, virus, and trojan-horse defense, experience has shown scanning to be less effective than necessary for a number of reasons. Foremost, the software is only as effective as the user or administrator configuring the product. All too often, software is installed but not updated, or users just do not understand the need to use such defensive software. Anti-virus software is increasingly both hard to understand and to manage. Without the basic IT security infrastructure, it is impossible to have effective IT security.

Specific Recommendations include:

- Continuing efforts to improve security awareness and practices through establishment, communication, and enforcement of policies, best practices, and guidelines
- Providing campus risk assessment processes and business continuity planning guidance to mitigate vulnerabilities in critical systems and to provide data to determine future campus security needs
- Providing effective campus solutions for worm, virus, and Trojan-horse defense
- Implementing solutions providing integrity and verification of electronic communication and communicating secure and effective uses for electronic communication
- Proactively improving security through campus intrusion detection and vulnerability assessment.
- Improving the campus incident response process and formalizing the IT incident response team

Steps

Implementation

- Continue with the existing risk assessment process
- Provide IT business continuity & disaster recovery templates for campus departments. Provide an anti-virus licensing option or a campus site license, build supporting infrastructure, implement a campus anti-virus policy, publicize best practices, and offer training for desktop protection strategies
- Develop and implement a secure e-mail environment that enables non-repudiation of sender and recipient identities and guarantees integrity of electronic communication
- A campus intrusion detection solution is in place

Policy & Standards

- Continued best practices and standards for existing and new technologies.
- Implement new campus network security policy.
- Implement new campus wireless policy.

Required Involvement

Governance & Authority

- The IT Leadership Team
- IT Advisory Council to provide guidance and programmatic direction

Required Departmental Involvement & Responsibilities

- IT to provide core leadership in the design, maintenance, operation and management of the IT security infrastructure
- Colorado Springs Campus Risk Management as well as the University Internal Audit to provide input into Business Continuity and Disaster Recovery templates
- Legal Counsel to provide clarification of liability and other legal concerns regarding aspects of IT security

Expected Costs

Annual IT Infrastructure Investment

- Web based secure shell application \$15,000
- \$40,000 for firewall hardware²⁰.

Operating and Maintenance

- \$29,000 bi-annual maintenance for anti-virus software licensing (exact costs dependant on licensing and technical strategies chosen)—these costs should be recharged
- \$60,000 hardware maintenance
- \$8,000 hardware maintenance for intrusion detection systems

Personnel

1 FTE in Fiscal Year 2005-2006

1 FTE in Fiscal Year 2007-2008

Funding

A combination of institutional funding and cost recovery should be identified to fund IT Security initiatives.

Timing

Specific timing will vary based on funding and tactical level decisions. The timing listed represents implementation priorities for the objectives in this plan.

- Security Awareness: in progress and an ongoing effort
- Risk assessment process: in progress and an ongoing effort
- Provide business continuity & disaster recovery templates for campus departments: March 2006.
- Anti-virus solutions: in place
- Network vulnerability assessment: Review quarterly
- Incident response process: In progress

4.3 Software and Software Licensing

Recommendation: Improve the processes used to identify, acquire, and manage software licenses, making software tools available to the University of Colorado at Colorado Springs campus community at the lowest possible cost.

The University of Colorado at Colorado Springs campus must develop selection criteria for software tools, investigate and identify appropriate products, negotiate advantageous purchase programs; communicate information and best practices to campus users and provide resources to improve the management of software assets.

Discussion of the Recommendation

Current Situation

The campus has many computing systems and therefore, a significant need for software products. The campus acquires software products from a large number of developers/vendors who provide a wide array of products, with a wide variety of features and capabilities, technical requirements, and licensing terms. The university faces special challenges in acquiring software products because software contracts are not like contracts involving ordinary goods. Software contracts transfer intangible assets and often provide a right to use rather than to own the product. Therefore, people involved with software licensing on campus must take time not only to identify appropriate products but also to understand complex licensing and purchasing terms, both of which change frequently.

Rationale

The availability of software tools is critical to the business, instructional, and research activities of the university. However, many in the campus community are seemingly unaware of existing campus-wide licenses or purchase programs; information about our current programs has not been effectively communicated. As well, many departments, academic units in particular, report that they are unable to afford the software tools required to do their work. Improving the processes used to identify, acquire, and manage software licenses will improve software availability while lowering ownership costs.

Specific Recommendations Include

- Develop selection criteria, such as the demand for software, the value of software, the compatibility of software with other computer systems, and the cost of software
- Develop guidelines for managing software assets
- Identify funding sources to acquire essential software tools for faculty
- Improve student access to software tools, especially those used in teaching and learning
- Identify funding sources to support activities related to the administration of software licenses, coordination of purchase programs, dissemination of information about software, and distribution of licensed software products
- Define computer system ownership at an appropriate level (deans, directors, department heads), considering the funding organization of the campus and delegate responsibility for ensuring license compliance accordingly
- Participate in consortia with other universities to share information and possibly gain advantages through coordinated negotiations with vendors
- Promote coordination of software selections for use across academic, business, and research areas
- Negotiate and promote purchase agreements for the campus, focusing initially on products that

are ubiquitous or essential, and based on IT and campus initiatives

Steps

Implementation

- Survey and assess the software products that have been purchased and are in use on the University of Colorado at Colorado Springs campus
- Determine the cost of providing and maintaining software tools and make this information available for inclusion in budget projections
- Review the current software licensing processes and procedures, identifying specific opportunities for improvement
- Identify specific roles and responsibilities in cooperation and consultation with faculty and IT Advisory Council
- Create and staff a position to support the administration of software-licensing programs
- Develop advanced solutions for software distribution and access, including automated and remote installation and management, network licensing and license metering
- Investigate the availability and value of software management products

Communication

- Use appropriate channels, such as the campus web site, constituent group meetings, e-memos, and print advertising to:
 - Inform the campus community of the existence of site and other broad license agreements
 - Raise awareness about the rights and responsibilities of software ownership and use
 - Ensure that IT support providers can provide accurate and timely information

Policy & Standards

- Develop guidelines for selecting and acquiring software products
- Develop standards and/or guidelines for managing assets and complying with licenses
- Publicize position statements and policies that promote the ethical and legal use of software

Required Involvement

Governance & Authority

IT Leader Ship Team
IT Advisory Council

Required Departmental Involvement & Responsibilities

- IT for technical expertise in advising and support
- Office of Budget and Finance for coordination of business service activities
- Faculty and academic technology representatives and coordinators for guidance and identification/prioritization of software tools
- Procurement Services and University Legal Counsel for review and authorization of contracts

Expected Costs

The following infrastructure, operating, maintenance, and personnel items represent new costs. The specific products that are cited reflect solutions that are available today and provide a basis for cost estimates. Further analysis will be required to identify the best solution and to establish the actual cost of implementation and maintenance. These newly incurred costs would be partially offset by savings in budgeted software acquisition costs and unbudgeted staffing costs.

Personnel

Personnel requirements to design, develop, deploy, maintain, and enhance the software management and distribution systems have not been established.

Personnel will be required to coordinate licensing activities, work with vendors, distribute software, communicate information to the campus and provide accounting services. Leverage existing service unit, such as the Procurement Service Center and IT, which will minimize the personnel requirements.

Funding

Software is essential and increasingly mission-critical for all students, faculty and staff. A combination of institutional funding, student fees, and cost recovery should be identified to provide adequate software tools and to cover the associated administrative expenses. Course fees should be investigated to provide for unusual software expenses associated with specific curricula. Institutional funding would be the preferred means of covering these expenses.

Timing

An initial needs assessment and software inventory should be conducted for the campus in the fall of 2006, followed by the development of a plan to improve software licensing processes and procedures. An assessment of the financial impact of these recommendations should be conducted in AY 2006-07, with funding sources identified for FY 2007-08.

4.4 Next Generation of SIS (Student Information System)

Recommendation: Minimize impact of proposed SIS replacement to the campus technical infrastructure.

A replacement of the university's Student Information System (SIS) has been proposed. A contract will be awarded fiscal year 2006-2007. Depending upon implementation decisions, the campus has begun consulting with members of the university's SIS replacement team to measure possible technical impacts and implement measures to ensure a seamless transition to the new product.

Discussion of the Recommendation

Rationale

An upgrade of the university's SIS would introduce significant functional improvements by offering web-based transactional access. The campus technical infrastructure would be affected in the following areas:

- Desktops – browser based access to HR system will require standard release levels of browser software.
- Data interfaces – some modification to campus system interfaces may be required to accommodate revised data interface formats and processes.
- Web-based authentication and authorization – the new release provides a capability for using an LDAP directory for authentication and role based authorization.
- Portal interaction – the new system must be integrated with campus portal technical design and development planning considerations.

Specific Recommendations

- Determine technical impact and requirements for integrating SIS with campus technical infrastructure and planning.

Implementation

- Create core technical team and process for defining project scope and requirements for integration with campus systems and processes.
- Participate in planning processes and provide consulting replacement project.
- Analyze and evaluate alternative approaches to meet requirements for integration with campus systems and processes.
- Design and develop interfaces.
- Provide assistance and support for technical staff in campus departments.

Communication

Communicate to the campus regarding technical impact of the new release and recommended solutions. Provide a feedback mechanism.

Required Involvement

Governance and Authority

IT Leadership Team and IT Advisory Council

Required Departmental Involvement and Responsibilities

- University Management Systems (UMS) to provide project management, systems analysis and design, software development, training, technical standards, and operation and maintenance of system interfaces
- Campus departmental technical staffs to consult and collaborate on system interface issues

Estimated Costs

Personnel

Personnel for technical impact analysis and design, development and implementation needs to be increased by approximately 1 full-time employee (FTE), over a period of one year.

Funding

To be determined

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4.5 Web-based Services Infrastructure Strategy

Recommendation: Provide a high-performance, centralized web infrastructure for hosting and managing campus web-based content and services.

University of Colorado at Colorado Springs should provide a robust, highly available, fault tolerant, central infrastructure to serve present and future web-based operations and develop solutions for web content management for campus departments, students, faculty, and staff using best practices for security, usability, functionality and design.

Discussion of the Recommendation

Current Situation

University of Colorado at Colorado Springs web-based infrastructure has grown without attention to comprehensive planning and strategic goals. There is limited campus-wide coordination of development and hosting of web projects. IT currently provides hardware, software and staffing for hosting institutional, student, faculty, and staff web pages and some departmental web applications. However, a significant number of campus web-based applications and static pages are developed and hosted within individual departments on an ad hoc basis without oversight or coordination. With the proliferation of web content and web-enabled applications, the campus is facing policy-level and technology-related challenges to optimize web-based services. Increased variety and complexity of content, such as animation, sound, and streaming video in addition to current text files are increasing demands for more advanced website functionality.

Rationale

A consistent, comprehensive campus web infrastructure is a prerequisite for further development and deployment of campus web-based applications. As the primary source for campus information, web services must be reliable, robust, and always available. As an institutional asset, campus web content should be managed and controlled in a manner that ensures the integrity of the content creation process. A central web infrastructure, utilizing content management and available campus-wide, provides a secure and efficient operating environment for developing and supporting campus web-based applications. Adopting a web content management strategy and common security processes improves consistency and currency of campus web-based information, reduce web development costs, enable the implementation of campus-wide security services.

Specific Recommendations Include

- Restructure the current central web-based infrastructure to improve performance, improve fail-over capability, improve manageability of content, and enhance security.
- Fund the development and maintenance of central web-based services to provide robust production level capabilities and staffing to meet necessary service levels for current and future campus needs.
- Implement web content management hardware and software for a phased implementation of campus-wide access and distributed administration of central web-based content.
- Develop a program of operational excellence for supporting web-based services to meet campus departmental business needs, ensure customer satisfaction, and achieve the results required for mission-critical web sites.

Steps

Implementation

- Review and analyze components of the current web-based services infrastructure to determine approaches for rationalizing and stabilizing the current hardware and software platforms, addressing security issues and web content issues, implementing web site monitoring, adopting management tools, and developing and implementing policies and procedures.
- Develop a forecast of web-based access demand for a central infrastructure including known and pending web application deployments, departmental web sites, opportunities for consolidation of web infrastructure, and growth in demand for higher bandwidth web services such as multimedia content.

Communication

Create a plan to communicate to the campus regarding the deployment of campus-wide web-based services. Solicit feedback from campus departmental web administrators from early planning through implementation.

Policy and Standards

Establish and implement policy and technical standards for web-based services encompassing mandatory and recommended practices, technical services, and content management. Policies and standards should reflect differing business needs and privacy and security requirements presented by separate web spaces such as public, student, departmental, and intercampus.

Required Involvement

Governance and Authority

IT Leadership Team
Information Technology Department

Required Departmental Involvement & Responsibility

- IT to design, implement, maintain, operate, and manage the central web-based services infrastructure
- Web Communications to collaborate on web policy, best practices, selection, and deployment of web content management software and infrastructure design issues
- Campus departments to collaborate on design, support requirements, web site monitoring and distributed content management
- IT Council to provide guidance and programmatic direction

Expected Costs

Annual IT infrastructure Investment

New costs

Infrastructure costs necessary to deploy a fully fault tolerant operating environment to ensure business continuity in the event of a disaster include web server hardware and software, application server hardware and software, database hardware and software, network hardware and software and redundant power supplies. These costs are estimated to be \$50,000 with annual costs estimated to be \$15,000 per year.

Infrastructure costs necessary to create a production level central web service, provide the necessary content

management capability and development platform include web content management hardware and software, content development and staging hardware, and web site monitoring tools. These costs are estimated to be \$50,000 with annual costs estimated to be \$10,000 per year.

Personnel New costs

Personnel for deploying, maintaining and supporting a production level central web service needs to be increased by two full-time employees (FTE), which will cost approximately \$100,000

Funding

Funding for creating a fully fault tolerant operating environment should be provided by general fund with re-allocation within IT budget as necessary.

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4.6 Assistive Technology and Accessibility

Recommendation: Continue to provide access to assistive technology facilities and technology support for individuals with disabilities. Work to ensure the accessibility of all technology and information resources on campus.

Discussion of the Recommendation

Current Situation

Currently, students access assistive technology (AT) on campus at the Kramer Family Library in El Pomar Center or in Disability Services located in Main Hall. The AT Lab is operated and staffed by Disability Services (DS). Assistive technology satellite stations are jointly run by DS and IT.

The Web Guidelines specify that “all electronic publications, to the extent feasible, must be made accessible to people with disabilities. As the new UCCS web site design is implemented, the percentage of accessible pages is increasing. However, much work remains to raise awareness among campus web developers and to improve the accessibility of campus information resources for people with disabilities.

Rationale

By implementing the recommendations below, the campus will ensure equitable access to IT information and IT resources.

Specific Recommendations

University of Colorado at Colorado Springs should continue to provide assistive technology facilities and support throughout the campus for individuals with disabilities both in the AT lab, as well as at existing satellite stations around campus. The campus should improve the support available to assistive technology sites. The campus should continue to provide some individualized assistance to students with disabilities (e.g., laptop loans, etc.). The campus should expand policies and develop communication plans to ensure the accessibility of campus information resources, such as web pages and web-based services.

- Continue to provide dedicated space for student assistive technology stations in the AT Lab.
- Provide dedicated space for alternate formatting (e.g., braille)
- Maintain the existing stand-alone adaptive stations in El Pomar Center 215 and continue to assess usage statistics to determine need for these stations

Ensure that students have access to audio capabilities in all labs

- Disability Services, the AT Lab, and IT should work together to establish and communicate best practices for making departmental labs and classrooms accessible

Steps

Implementation

- Obtain, test, and pilot adaptive software and hardware technology in the AT lab.
- Develop a model for improving audio capabilities in the AT labs.

Required Involvement

Governance & Authority

IT Leadership Team
IT Advisory Council

Required Departmental Involvement & Responsibilities

- Disability Services to provide AT training for the AT lab
- IT to work with DS on lab accessibility best practices
- Provide leadership, coordination, and communication of guidelines, policy, and training opportunities to ensure the accessibility of information and IT resources across campus, including web-based student services and academic resources.

Expected Costs

Annual IT Infrastructure Investment

Cost of student employee to provide support for the AT lab (this position is funded by the Disability Services Department)

Operating and Maintenance

Maintenance cost based on three year upgrade cycle - \$35,000 (new cost)

Funding

In the past, some funding for equipment has come from the Student Technology Fees. Disability Services currently funds support for the AT Lab and should continue to provide that support.

Evaluation Matrix

Recommendation	Intended Impact	Possible Performance Measures & Methods	Assessment Timeline
<p>Establish a well-communicated and coordinated educational technology support model for instructional design and advanced technological and pedagogical innovation, as well as for course content and course management and organization.</p>	<p>Faculty will have high quality educational technology support when and where they need it.</p>	<p>Survey faculty and students regarding the effectiveness of the support model</p>	<p>Review in May 2006 & 2008</p>
<p>Establish campus-wide goals and programs for information and information technology (I/IT) literacy for students, and facilitate the creation of goals for discipline-specific I/IT fluency.</p>	<p>Students will possess appropriate competencies in I/IT literacy and fluency.</p>	<p>Survey faculty & students regarding learning impact; survey alumni regarding the usefulness of the I/IT initiative after graduating; evaluate overall impact; and benchmark w/comparable schools.</p>	<p>Review in May 2006 & 2008</p>
<p>Provide well-coordinated and broad support and services for digital media and videoconferencing.</p>	<p>Uses of and services for digital media and Videoconferencing will effectively support the academic mission.</p>	<p>Survey faculty and staff regarding quality and usefulness of services</p>	<p>Review in 2006</p>
<p>Develop an effective scheduling process, improve support for and upgrade existing technology-enhanced instructional facilities</p>	<p>Instructional facilities will be scheduled, equipped, and supported effectively to support faculty use of educational technology in the classroom.</p>	<p>Survey faculty and students regarding effective use of technology classrooms, gather performance measures regarding scheduling</p>	<p>Review in fall 2006</p>
<p>Develop a robust, unified, and supportable web-based learning management system infrastructure capable of supporting every course at University of Colorado at Colorado Springs.</p>	<p>Use of LMS tools will enhance the teaching/learning experience.</p>	<p>Survey faculty and students regarding how the LMS has affected the learning experience.</p>	<p>Review in 2006</p>

Provide excellent, unified web-based student services tailored to individuals based on their affiliation with University of Colorado at Colorado Springs via a campus student portal.	Students will have easy access to a wide range of student academic and transaction-based services.	Survey students regarding performance and usability of a portal and conduct student focus groups.	Review in May 2006 & 2008
Address IT security issues, including network and data integrity and reliability, and proactive IT security management.	Network and computing resources will be protected by appropriate security practices and policies.	Assess security effectiveness through incident reports and other appropriate measures.	Review yearly
Provide enhanced and new e-mail services to all faculty, staff, and students.	E-mail services will support effective and efficient campus communications.	Survey faculty and staff regarding e-mail performance and user expectations	Review in fall 2006
Centrally coordinate specific aspects of IT to achieve efficiency and decrease duplication (e.g., wireless, security); establish centralized authority for other aspects to achieve reliability and stability of the campus IT infrastructure (e.g., Enterprise Directory, software licensing); continue to distribute responsibility for some departmental-specific IT services (e.g., desktop support, departmental-specific applications).	Collective IT resources will be appropriately balanced between a combination of distributed and central services.	Survey faculty, students, and staff on the effectiveness of key initiatives to determine effectiveness of centralization or decentralization	Review yearly
Communicate IT resources availability, policies and guidelines, and the roles and responsibilities of the IT Leadership Team and of IT Advisory Council (ITAC) to the entire campus.	IT leadership will communicate IT policies, guidelines, and initiatives effectively to the entire campus.	Survey faculty, staff, and students about knowledge and understanding of IT issues and evaluate the website.	Review yearly

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UCCS Faculty IT Survey 2005 REV042705: Survey Summary Detailed Report with Write-In Responses

1. Please indicate whether you are staff, faculty or administrator.									
Faculty 1	Staff 2	Administrator 3					n	Mean	STD
25 (83%)	4 (13%)	1 (3%)					30	1.2	0.48
2. Please indicate the unit for which you work.									
Administration & Finance 1	Academic Affairs 2	Chancellor's Office 3	CU Foundation 4	Kraemer Family Library 5	Student Success 6	Beth-EI College of Nursing & Health Sciences 7	College of Business 8	College of Education 9	College of Engineering and Applied Science 10
0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1 (3%)	1 (3%)	11 (37%)	3 (10%)	2 (7%)
College of Letters, Arts & Sciences 11	Graduate School of Public Affairs 12	Other 13	n	Mean	STD				
12 (40%)	0 (0%)	0 (0%)	30	9.33	1.56				
3. Please indicate the kinds of technology that you typically use during your work day at UCCS and how often you use them.									
Never 1	Rarely 2	Occasionally 3	Regularly 4				n	Mean	STD
Any part of the MS Office productivity suite (e.g., Word, PowerPoint, Excel, Access)									
1 (3%)	0 (0%)	1 (3%)	28 (93%)				30	3.87	0.57
Web/Browser access to CU Systems (e.g. UMS, SIS, CITRIX)									
6 (20%)	2 (7%)	7 (23%)	15 (50%)				30	3.03	1.19
UCCS e-mail									
1 (3%)	1 (3%)	3 (10%)	25 (83%)				30	3.73	0.69
Web development authoring (e.g., FrontPage, Dreamweaver)									
12 (40%)	6 (20%)	4 (13%)	8 (27%)				30	2.27	1.26
Multimedia software (e.g., a photo editor, video editor, Flash)									
8 (27%)	9 (30%)	9 (30%)	4 (13%)				30	2.3	1.02
Course Management Software (e.g., CyberClass, WebCT, e-College/e-Companion)									
1 (3%)	0 (0%)	3 (10%)	26 (87%)				30	3.8	0.61
Scientific or research related software									
10 (33%)	7 (23%)	5 (17%)	8 (27%)				30	2.37	1.22
Statistical software (e.g., SPSS, SAS)									
14 (47%)	2 (7%)	5 (17%)	9 (30%)				30	2.3	1.34
Course specific software									
8 (27%)	6 (20%)	4 (13%)	12 (40%)				30	2.67	1.27

4. The following IT Issues were identified and compiled by the UCCS IT Advisory Council in September 2004. Funding IT issues on the UCCS campus means that each issue competes with others based on priority. We ask for your input in prioritizing these campus IT issues.

Please prioritize each item.

Low 1	Medium 2	High 3	No Opinion 4				n	Mean	STD
Increase the number of Computing Services staff									
5 (17%)	12 (40%)	3 (10%)	10 (33%)				30	2.6	1.13
Provide web site development standards and assistance									
5 (17%)	9 (30%)	11 (37%)	5 (17%)				30	2.53	0.97
Provide wireless network access on campus									
3 (10%)	7 (23%)	16 (53%)	4 (13%)				30	2.7	0.84
Establish a campus-wide laptop initiative that requires all incoming freshman students to have a laptop									
12 (40%)	5 (17%)	8 (27%)	5 (17%)				30	2.2	1.16
Implement pay-per-page printing in all open computer labs and the library whereby the user pays a flat fee for each page printed									
7 (23%)	7 (23%)	6 (20%)	10 (33%)				30	2.63	1.19
Increase the number of Smart Classrooms campus-wide (classroom with a computer, LCD projector and DVD/VHS player that allow multimedia presentations)									
0 (0%)	3 (10%)	23 (77%)	4 (13%)				30	3.03	0.49
UCCS network security									
1 (3%)	8 (27%)	17 (57%)	4 (13%)				30	2.8	0.71
Campus software licenses (ability to purchase software at very low prices due to campus wide licensing - currently available for MS Office, SPSS, Adobe products)									
1 (3%)	7 (23%)	21 (70%)	1 (3%)				30	2.73	0.58
Increase development support to increase the number of course offerings via distance education, offered fully online (no on-site class attendance required)									
7 (23%)	7 (23%)	13 (43%)	3 (10%)				30	2.4	0.97
Increase development support to increase the number of course offerings via distance education, offered partially online (hybrid - part online with some on-campus meetings)									
6 (21%)	7 (24%)	12 (41%)	4 (14%)				29	2.48	0.99
Standardize ALL UCCS e-mail systems to ONE e-mail system (currently several departments on campus have distinct e-mail addresses).									
7 (23%)	8 (27%)	9 (30%)	6 (20%)				30	2.47	1.07

5. What have we forgotten? Please use the space below to add any additional comments that you may have.

* None

* I'm just starting @ UCCS so I haven't had enough experience with the IS group/function to accurately comment.

* Keep e-companion the campus standard

* I attempted to use e-companion this semester to give my students the opportunity to check grades and syllabus on line. I am not a computer whiz, but do use spreadsheets for grade-averaging and Word and Ami-Pro for preparing exams and other assignments. I found the e-companion system to be extremely user-UNfriendly. It consumed hours of my time, and time from helpers at TLC, but I don't think it was worth it, and will probably not use the system again...

* Upgrade the computers. Buy upgradable computers.

* You forgot some options in the printing fee question. Regarding the pay-per-page issue: I agree that there should be a set fee that grants students the ability to print only a certain number of pages every semester (say, 500), but I think the system should be offered for free to faculty (perhaps up to a certain number of pages,) since we often receive student materials via e-mail and not all of us have access to office printers.

* Printing charges are going to become more pressing as time goes on. Mandatory charges (after a generous number of free pages) will improve the viability of many student support units on campus. Also, a mandatory laptop program, IMO, must not be instituted without finding means of support for worthy, but needy students, and (again, IMO), must not be instituted without wireless service throughout the entire campus -- classrooms, housing village and other public spaces.

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UCCS Student IT Survey SP05: Survey Summary Detailed Report with Write-In Responses

1. Please indicate the college that you are enrolled in at UCCS.									
College of Business 1	College of Education 2	College of Engineering & Applied Sciences 3	College of Letter, Arts & Sciences 4	Beth-El College of Nursing & Health Sciences 5	Graduate School of Public Administration 6	Other 7	n	Mean	STD
320 (27%)	57 (5%)	61 (5%)	387 (32%)	356 (30%)	0 (0%)	13 (1%)	1194	3.38	1.63
2. Please indicate your student classification at UCCS.									
Undergraduate 1	Graduate 2	Other 3					n	Mean	STD
841 (70%)	332 (28%)	21 (2%)					1194	1.31	0.5
3. Do you live on campus in UCCS housing?									
Yes 1	No 2						n	Mean	STD
111 (9%)	1083 (91%)						1194	1.91	0.29
4. Please tell us about your personal use of technology.									
Yes 1	No 2						n	Mean	STD
I have a computer at home/campus housing.									
1145 (96%)	49 (4%)						1194	1.04	0.2
I access the internet from my home/campus housing computer.									
1104 (92%)	90 (8%)						1194	1.08	0.26
I use the UCCS modem pool to access the internet, e-mail, etc.									
462 (39%)	732 (61%)						1194	1.61	0.49
I use a private Internet Service Provider (e.g., AOL, MSN, PCI Systems, Adelphia) to access the Internet, e-mail, etc.									
926 (78%)	268 (22%)						1194	1.22	0.42
I use a dial-up modem connection to access the internet from home (via phone line) other than the UCCS modem pool.									
307 (26%)	887 (74%)						1194	1.74	0.44
I have a broadband connection to the internet from home/campus housing (e.g., Cable Modem, DSL, Satellite)									
756 (63%)	438 (37%)						1194	1.37	0.48
I check my UCCS student e-mail account at least once weekly.									
923 (77%)	271 (23%)						1194	1.23	0.42
I use WebMail to access my UCCS student e-mail account									
742 (62%)	452 (38%)						1194	1.38	0.49
I use a laptop computer.									
630 (53%)	564 (47%)						1194	1.47	0.5
I use a handheld device, aka PDA (e.g., Palm Pilot, PocketPC)									
197 (16%)	997 (84%)						1194	1.84	0.37

5. The following IT Issues were identified and compiled by the UCCS IT Advisory Council in September 2004. Funding IT issues on the UCCS campus means that each issue competes with others based on priority. We ask for your input in prioritizing these campus IT issues.

Please prioritize each item.

Low 1	Medium 2	High 3	No Opinion 4				n	Mean	STD
Increase the number of Computing Services staff									
287 (24%)	345 (29%)	102 (9%)	460 (39%)				1194	2.62	1.22
Provide web site development standards and assistance									
283 (24%)	383 (32%)	141 (12%)	387 (32%)				1194	2.53	1.17
Provide wireless network access on campus									
180 (15%)	252 (21%)	478 (40%)	284 (24%)				1194	2.73	0.99
Establish a campus-wide laptop initiative that requires all incoming freshman students to have a laptop									
658 (55%)	146 (12%)	93 (8%)	297 (25%)				1194	2.02	1.27
Implement pay-per-page printing in all open computer labs and the library whereby the user pays a flat fee for each page printed									
833 (70%)	91 (8%)	48 (4%)	222 (19%)				1194	1.71	1.18
Increase the number of Smart Classrooms campus-wide (classroom with a computer, LCD projector and DVD/VHS player that allow multimedia presentations)									
161 (13%)	346 (29%)	449 (38%)	238 (20%)				1194	2.64	0.95
UCCS network security									
148 (12%)	369 (31%)	479 (40%)	198 (17%)				1194	2.61	0.9
Campus software licenses (ability to purchase software at very low prices due to campus wide licensing - currently available for MS Office, SPSS, Adobe products)									
162 (14%)	342 (29%)	460 (39%)	230 (19%)				1194	2.63	0.94
Increase development support to increase the number of course offerings via distance education, offered fully online (no on-site class attendance required)									
227 (19%)	301 (25%)	439 (37%)	227 (19%)				1194	2.56	1
Increase development support to increase the number of course offerings via distance education, offered partially online (hybrid - part online with some on-campus meetings)									
285 (24%)	326 (27%)	324 (27%)	259 (22%)				1194	2.47	1.08
Standardize ALL UCCS e-mail systems to ONE e-mail system (currently several departments on campus have distinct e-mail addresses).									
269 (23%)	308 (26%)	317 (27%)	300 (25%)				1194	2.54	1.1

6. What have we forgotten? Please use the space below to add any additional comments that you may have.

* N/A

* Expand the computer lab at Beth-El currently, you can hardly get to use a computer unless you time your access to the computer lab early morning or late afternoon. Also, need more printers to support the use load. Computer work areas are extremely tight. You hardly have any room to lay your books and reference material. Also, NOISE IS AN AWFUL Problem. Maybe have computer lab rooms set aside specifically for the NURSING STUDENTS to talk across each other regarding their assignments and clinical experiences! (Same applies to the Kramer Library computer areas. Students get together and converse loudly about their party experiences, love lifes, etc... very hard to concentrate on assignments in the LIBRARY where it is meant to be a learning/work

environment not a social opportunity.)
* I am a graduate nursing student and have taken 7 online courses. Distance learning affords working professionals increased access to graduate and doctoral education, allows 24/7 access to instruction, and eliminates commute time and cost. The IT dept needs to offer 3-D tutorials for students interested in online education but are wary of moving into a virtual classroom. The e-companion tutorial is good but is meaningless for students, especially older students, who don't have the courage to register for online courses. Additionally, many faculty also need to be educated on on-line teaching techniques- there is a great disparity in comfort-level and expertise among UCCS virtual instructors. I hope the IT dept is also surveying faculty in re: to their willingness to teach on-line and their IT savvy. Please note the following citation for on-line evaluation-UCCS needs a different evaluation tool that is more appropriate to virtual education: Johnson, L. R. (2002, November 14-16). Evaluation of Online Courses: Separating the message from the messenger. Paper presented at the Teaching Online in Higher Education virtual conference. Retrieved April 11, 2005, from http://www.ipfw.edu/as/tohe/2002/Papers/johnsonl.htm Abstract Distance education in higher education is growing very rapidly primarily due to the availability of web-based instructional environments and the demand by students to have courses delivered in a flexible and time-efficient manner. Despite the rapid growth of online courses and its widespread implications, few universities have developed a method for conducting formative and summative evaluations appropriate for the new instructional methodology. Furthermore, few universities are addressing the need to separate course evaluation from instructor evaluation. In this presentation a model of evaluation is proposed that addresses existing problems with online course evaluation. I have taken the time to provide substantive comments in hopes that the IT dept will implement some of them. My family and I have greatly benefited from the convenience of online education. I would like to see the # and quality of online courses increase. Thank you.
* I feel that the computers in University Hall need to be updated to at least the same standard as in the Library. It is unfair that I have to pay technology fees, but because all of my classes are in UH (nursing), I am unable to utilize the upgraded equipment that I paid for.
* Beth El s a majority of the students at uccs but is like a step child when it comes to technology. There are a limitted amount of printers/ computers and they are all older than the ones on the rest of the campus. Beth El needs more computers and a larger room to put them in there should be no reason why all the other school have better and larger computer labs.
* Some easier way to access the network from home computers would be nice because it will not work for my computer currently and I have to make special trips into town to look up journals and such for papers.
* updated (quicker) and more computers at the Beth-El building should be a priority soon. I only have classes at UH, and my parking pass is only good there. That limits my computer studying hours at the main library where the technology is better. All uccs students should have equal access to the fruits of student technology fees.
* we already pay for library fees and for paper. DO NOT implement pay as you go. If you do than take the fee off of our registration.
* Please do NOT begin to charge us for printing! I and many other students could NOT afford this in addition to paying the high student technology fees!
* make sure ALL university faculty uses the ecompanion and email system to communicate with the students since we pay tuition to cover technical expenses. If the students are required to use the system then all staff should use it as well!
* I have called the IT department several times for assistance regarding library and other access from home. Each time the person answering the phone has been pleasant, helpful, and very knowledgeable regarding my questions. Thanks,
* How about OPTION of taking classes WITHOUT ANY ON-LINE accesses...Like in a classroom...with student interaction and group process....HOW MANY OF YOUR GRADUATES FUNCTION IN COMPLETE ISOLATION IN THE WORK WORLD??????????..YOUR ON-LINE EDUCATIONAL PROCESS IS PREPARING THEM TO BE THAT KIND OF A PRODUCER.....AN ISOLATIONIST THAT DOESN'T INTERACT WELL WITH OTHERS!!!!!!!!!!!!!!!!!!!! KGH
* SPAM filtering for email?
* Standardize passwords for email, e-college, and network logons so we only have one password for each and when one is changed, they all are.
* Beth-El needs more computers and printers.
* DON'T FORGET ABOUT BETH-EL! we need more computers there too!
* I don't own a computer. I use the computers at school. Keeping up the computers at school is the number one priority to me. Thanks
* stop with the stupid necessity of changing passwords so often and making it impossible to choose a new one that fits the parameters!
* i know it was listed above, but wireless internet at school would be SO GREAT! It seems like a no-brainer that we should have it; they have it airports, coffeeshops, hotels, etc. I think that it would be great, and it could cut back on use of computer labs for web-surfing/personal use, and have them be more available for school-related work.
* I think I pay enough in fees already. I should not have to pay for paper used to print documents.
* Nothing

* Last year, the dorms had a nice internet hookup, with firewalls. This year (04-05), the internet hookup provided was a disappointment. Almost everyone I know got a virus and/or spyware, including myself. For the amount of money we're paying for dorms, it should at least include a reliable server. I am incredibly disappointed with the new server.

* The Nursing Building NEEDS new computers with an actual printer that works. So many times I have tried to access things from the internet or even use a disk with items that I have saved from my home disk and they either fail or the computer freezes. This is very frustrating! There are many students at that part of the campus and we shouldn't have to travel to the library just to use a computer that works.

* THANK-YOU FOR THE PEOPLE IN IT. THEY ARE ALWAYS EXTREMELY HELP AND CHEERFUL.

* N/A

* Pay-per-page is not a good idea. Increase the fees for technology to cover that. The last thing students need is to come up with spare change for printing assignments. In addition, it would be nice if the University Hall computers were given the same priority as the main campus computers. Getting the toner replaced or the printer serviced seems to require an act of God.

* Doing great! Highly recommend NOT enforcing a "pay-for-page" printing fee!!

* Not everyone can afford a laptop, especially with the price we pay for tuition. Requiring incoming freshmen to have a computer is poor business. I would seriously reconsider this. At Beth-EI our technology fees are a joke. We get the leftovers and hand me downs. Nothing ever works and the printers/copiers are horrible!!!! Let's spend our money trying to get things working before we start trying to worry about adding other stuff.

* better and more printers in the Beth EI program

* UCCS charge an outrageous amount for distance based students who do not come to campus for services. I am fortunate to have colleagues in other institutions across the country who I have retrieve information and access articles for me because of the barriers UCCS has.

* As a graduate student it is my opinion that UCCS doesn't offer enough online courses to compete with other Universities and Colleges in Colorado Springs, which is really a huge disadvantage for graduate and senior students. Thanks, Gabriela M Pitts

* Improve functions available on email site and online study site, such as word features of bold, italic, underline.

* please note that I am an extended studies graduate student, living out-of-state. I have enjoyed being able to attend UCCS via on-line programs

* longer IT help hours--if we are online, we are not usually having problems 9-5 m-f. Adjust fees--\$100 per online course plus all the fees for things that a distance learner can't use is double dipping.

* If you offer online classes and out reach type class you have to change the whole mind set of learning. You can't have out reach and not have a wider range of hours for the bookstore, financial aid, etc. People who want out reach classes can't get to campus for those other items either. Teachers have to be specifically trained to teach online as it is vastly different than classroom teaching. Support staff must be available and the library has to be prepared to take the requests needed for students who are not able to come in nor should students be kept on hold for ever.

* I hate the UCCS email system. I can't even find the stupid "delete" button when I want to delete a bunch of emails at the same time. It is clunky and confusing and I still haven't figured out what all the buttons are. I just want to read and delete my email. I don't need all those other bizarro buttons.

* none

* UPDATE EMAIL.... This program seems to be from the rock ages....there are many new updates and much more user friendly programs out there. I continue to use my e-mail from my undergrad school for that reason!

* I'm still using my "old" student id number as the password for my online classes. Why didn't that change when all the other id #s changed? tech support has been great helping with online classes.

* I am taking an online class and was unable to access my email from the beginning. Though this at first was a problem, the fact that they were able to forward all of my email really helped alot!

* Just that I would really like to see more departments offering a wide range of online courses.

* I don't have anything to add

* Keep the shuttle available at the four diamonds complex. Lower the price for students parking permits. I don't understand why we have to pay full price when we only meet once or twice on campus during the week.

* Make taking tests online better. right now it is a horrible process and has many faults. I have never taken a test online where I have NOT had a problem.

* Help part-time students access their UCCS e-mail through an on-line training via e-companion
* One of the biggest problems on campus is lack of training in accessing e-mail, NT accounts and using the equipment. Every undergraduate student must take English Comp 131, it would be the ideal place to make sure all students can log into campus mail, cyberclass and learn the basics. Of course, this would mean this aspect of those courses would have to be standardized. Another problem is faculty training. Right now, not every department enforces a requirement that faculty demonstrate a basic understanding of how UCCS IT resources work. I have seen three different professors (all of them from LAS) not recognize the computer in their classroom when they looked at it. A priority for the University should be facilitating and funding training.
* It would be very helpful if you knew what versions of programs (i.e. QuickBooks) that you had on campus, that it was fully functional, and if you had copies that students utilizing it for class could download. If you couldn't do that, at least it would be good if the bookstore had the version on campus and it could be purchased at student rates.
* I have no additional comments at this time.
* The hours of the IT Help Desk (0800-1700) do not support graduate student hours on campus - perhaps extended hours (say until 1900) on one day per week could be considered
* Software only available in Dwire makes it hard to get there for a working student because they do not carry the same hours as the library.
* Improvement on distance education is extremely important to me
* Having more labs open latter hours
* We change our passwords too often. Should just be once a semester. I think.
* Please provide 24/7 IT support; we need access to the help desk and technical support most on weekends and during the evening hours!
* Unify the sign on process for all the different systems. Currently, I have 3 separate sign on & passwords. One the main system, one for e-companion, and one for SIS. Too many different id's and too many passwords.
* bring the number of online teaching tools to one that works for all classes (e.g. cyber class, e-college, e-companion) and provide the teachers a class list to email class information to all students.
* I would love to have wireless access and more computers in Dwire.
* Funding and IT support shared with the COB lab. It's very utilized and could use some help with upgrades.
* You need more hours in the library
* More effective search feature on the UCCS website. Consolidated usernames and passwords for all UCCS systems (I think I currently have 3). I can't stress enough how much I do not want to see the pay-per-page printing anywhere on campus. Increased number of color printers. Personally, I don't like having to change my password, although I understand this may relate to important security issues which I ultimately do think are important. However, I would be interested to know the severity of security risks and how effective the password changing is in their prevention and/or fewer security breaches (or whatever measure of security is used). Again, please don't make us pay-per-page...that's ridiculous! Especially with the increase in number of power point slides in classes.
* None
* The timing of some changes to the system was not planned well. Updating the system during freshman move in did not portray the school in a good light.
* I think the students will be concerned about paying more fees.
* I would like to see the library and computer labs have later hours, especially leading up to finals. I also think that it would be nice to have several of the basic 100 level courses offered online.
* Spell check on UCCS Webmail is very poor- does not even recognize "UCCS" as being a word.
* UCCS should have a computer lab that is open 24 hours a day
* perhaps have a brochure or a mass e-mail on the steps to access the UCCS server from home. I would love to have access to my z drive, but am not sure of the steps to go about doing it.
* A unified wireless system is critical. The lack of wireless support on campus demonstrates the sorry state of the IT group at UCCS. There are a number of very talented and experienced students in the College of Business that would be great additions to the IT Staff. Sadly, none of these assets are being tapped.
* I check my email from uccs by having it forwarded to my aol account otherwise I probably wouldn't get uccs email as I find the email site very difficult to use
* UCCS e-mail could be more user friendly and cyberclass e-mail should not be taught if uccs is the only one going to be used. Please find another way of protecting a students security rather than changing our password every couple of months.
* It would be helpful to have more group computer rooms in the library

* Update facilities on campus, specifically Dwire Hall, and at least ensure IT equipment in classrooms (especially at the MBA level) are in working order and have adequate supplies, like markers.
* Faster email service!! It's so slow!!
* The IT center on campus should be advertised more and the services it offers. Lots of people don't know we have an IT center.
* Wireless access to the UCCS network is very important. If you have a good network, and have your students carry a thumb drive/flash drive that connects via the USB, then laptops are not necessary. I see very few people using laptops in class, but only for study and document creation.
* u should make this optional-- and do not institute pay per page printing-- this would be unfair as many profs require us to print so much material. The standard it fee is high enough as is
* Increase staff knowledge of computers in the IT department. When I have taken my laptop in for help, it comes back the same...Nothing is ever fixed. It's kind of aggravating that they can't seem to help me.
* Everything works great. For my entire career here I have had slow dial up connection at home and it is great that there are alot of computers available at school. GOOD JOB!
* It would be really nice to see more computers in group study rooms, and more computers in general in the library. Thank You
* I am not sure which answer was appropriate for me in terms of pay-per-page, but as a graduate student I am REQUIRED to do a lot of printing and my work will be greatly affected by a pay-per-page. This is NOT something I want to happen... a FLAT FEE would be preferable. This takes precedence over ALL other answers... this is my greatest concern and I think the easiest to solve... plus, a flat fee would mean that you would not have to outfit the computers/printers with new technology. Second to this concern is my concern over the hours that the computer labs are open... these need to be open on Sundays.
* While I support the implementation of pay-per-page printing, as my undergraduate institution instituted it during my tenure there, and I have seen it dramatically reduce printing, please consider the following options to ease the unequal burden on graduate students within this system: 1) Allow us a significantly higher number of free pages than undergraduates, whether they are flat by semester, tenure, or by credit hour. (We are required to print more than most.) 2) Implement lab usernames so that students may print under the auspices of their mentor or their department, and bill to that mentor/department. Why? I think the quality of graduate work will be compromised if the cost to print out articles and papers is too high. We are not trying to "work" the system or be lazy. We do not print unnecessarily, and most of my fellow graduate students are very environmentally conscious. We just want to be able to do good work, get into prestigious Phd programs, and eat more than Ramen. Thank you!
* It is ridiculous how many times I have had to change my password. Were breaches in network security that big an issue before?
* more computers, i spent 15 minutes waiting for a computer to free up in the library, partly due to there being a class in the computer lab. i think they need more computer classrooms available.
* Have a password and user id to access all campus things such as student information, web ct, email
* I think it would be ineffective to implement a pay-per-page printing. We have an IT fee and that should cover the amount we want to print. Don't make college cost anymore than it already does.
* Offer more courses online!!!!!!!
* I don't think we should have to change our passwords so often. It gets kind-of annoying. Especially since we have to change them right before finals!
* Tuition is already expensive enough. Don't charge for printing from the computers on campus.
* The passwords are canged to much. There should ve a system where someone tries to crack passwors and if they succeed then the password of that person should change. Also there are still passwords that can be used that should not be in use. i.e. the word password
* when I call the IT people I feel as if they think that I am not smart just because I do not understand computers. some of the people have been really nice, but others have been really rude too me.
* Possibly a computer station for printing ONLY.
* Is what we have now really so bad? Technology does not always benefit the educational techniques used at UCCS. Standardized powerpoint presentations have made instructors lazy and ignorant of anything other than what their slides say, and "smart" class technology is used as just another cheezy way for instructors to take attendance. As for the pay-per-page idea, how is that in any way a benefit to the students? Sounds like just another turn of the wrench already bleeding my stones purple. I know you guys are just trying to make things more accessible, but why not focus on the basics first? I mean a brilliant lecture is still a brilliant lecture whether it is scibbled on a chalk-board or displayed on a multi-million dollar plasma screen TV. I don't mean to piss on your survey or anything, but glossing over our educational programs with a thick coat of technology doesn't make them better, just more expensive.
* I do not believe that paying per page will take care of the problem. I believe that students that print off hundreds of copies of the same thing for class projects and such need to charged for additional copies, but, if they only print one copy a document that it should not be a problem. Also, I think that it would be prudent if you find a way to build in a \$ amount to be added to student fees to cover the cost of paper and toner per student.
* It is hard to understand what is meant by high, low, medium in section 5.
* I don't have a reliable computer at home and it doesn't have many of the software programs available here on campus. Therefore, I have to travel to UCCS to do anything that requires a computer. Why is there not a REAL 24 hour lab? I understand that the engineering lab is open 24 hours Monday through Thursday and open the same times as the library the other days of the week, but I would rather see the engineering lab open when the library is not. There have been many times in my four years here that I have

<p>needed to use a computer before 11AM on Saturday and before noon (noon!) on Sunday. I would strongly agree with a lab that would be open when the library is not.</p>
<p>* Teach the teachers to use the campus programs so that the students can access more class information. The teachers seem to forget that it is there for the students ability to access information, or they are too lazy to figure out how helpful it can be.</p>
<p>* I think limiting the use of pages printed will cut the amount that is wasted. I honestly think the IT system is fine, and the students are overly spoiled. They should appreciate what they have.</p>
<p>* not have different passwords for logging onto computers in the library than email or webct or ecompanion and cyberclass. it makes it difficult to remember so many passwords and then when you have to change the passwords frequently it is almost impossible to keep them all straight since the requirements for "creating a password" are all so different. Also, having so many options for teachers to use makes work scattered across the network. All teachers should use ecompanion rather than cyberclass and the other options. make life simple!!</p>
<p>* I think it would be ridiculous to require incoming freshmen students to own a laptop computer. That just adds more money to the student and family debt, in addition to the cost of education that is already exorbitant, as well as the IT fees we pay each semester.</p>
<p>* I need more SPSS and I don't want to pay per page tp print. It is crazy to have all freshies have laptops, don't you want students from all SES??? Diversity = a lovely school</p>
<p>* I appreciate that we are not required to pay for printing at the college. I believe that is someting that should remain the same, I understand the costs associated with this, however, I feel that our Student Technology Fees should continue to cover this cost. I really would be upset to see that leave.</p>
<p>* The UCCS web email system needs some loving attention when it comes to the various skins, and seeing the stupid information from the manufacturer or getting redirected to their website when you log out. WE DON'T CARE who it's licensed from or to see the latest news of their product!</p>
<p>* Not so much forgotten, but student fees are meant to cover printing and I am extremely opposed to having to pay to print. As an upcoming graduate student, I know I will be required to give large presentations accompanied by large amounts of research and imposing yet another fee to print restricts my ability to perform to the best of my ability.</p>
<p>* I use the computorlabs as my only conection to tecnology. Weather it is typing papers or cheking e-mail.</p>
<p>* Place more student accessible computer labs around the campus and increase the number of available stations in the library commensurate with the percentage increase in students over the past year.</p>
<p>* Work on the UCCS modem pool for the internet. More then once has the housing village experienced problems with the internet.</p>
<p>* The wireless conection at Jazzmans sucks and needs to be fixed. It frequently disconnects you from the network. There is no stable conection. Please fix.</p>
<p>* Training you staff better would be great. Sometimes I get only blank stares when I'm trying to explain my problems. Also, making sure e-companion actually works would be great. Sometimes it's not working very well. Also, I think that improving the features of e-companion should be a PRIORITY. Making sure that its features are more like the features on WebCT would improve everybody's experience with the program.</p>
<p>* What exactly do our lab fees cover, and our tech fees? You're going to have some angry students on your hands if you start charging us more for printing fees. Maybe you should convince the prof's that they shouldn't create assignments that require that we use so much paper. Some of my classes require that I print up 30 pages for each class and I don't have the money to replace an ink cartridge every other month.</p>
<p>* I often use the computers at UCCS. They are a great help, since I do not have high speed at home, or some programs such as powerpoint at home.</p>
<p>* allow us to change our password to previous old passwords after a certain amount of time.</p>
<p>* Please let us keep our passwords for longer periods of time. I think most students would agree that the slight security risk pales in comparison to having to creat and remeber new passwords ever couple of months.</p>
<p>* I very much dislike that I have to continue to change my password. It is hard enough to remember my separate passwords for cyberclass, e-companion, web CT, etc and rememerize my password for the network and webmail. I also think that all the login names and passwords I use to be standardized (i.e. my network, e-companion, web CT, and cyberclass username and password the same throughout).</p>
<p>* In the wireless that is set up, put a WEP key on it so the the information is encripted and e-mail and other private information is kept private.</p>
<p>* none</p>
<p>* Have more computers available in common areas: Library, etc.</p>
<p>* I don't like to change my passward all the time open the liberary earlier than 7:30 we need more study rooms with computers in them</p>
<p>* The server seems to be a little unstable, and the network keeps on going down at inopportune times. Due to the increase of students, perhaps the network needs to be looked at in terms of scalability. With the way the network is set up now, it's prone to slow down considerably due to congestion. As a Computer Science major, it is important to me that the server doesn't crash right before I have a program due.</p>

* Definitely do NOT charge for each page of print in all open computer labs and the library! We spend enough money on this school that we should be able to print for free here!

* I often lose work b/c I do not know how to save and transfer files correctly. Just last week I lost a whole power point presentation b/c I had not saved in the "z" file (never had heard of that), but instead used "my docs". So how about a 1 or 2 credit class for new students where a qualified computer person (can be a student or independent study person) teaches the basics and hands out a local produced reference manual on how to use the products and services. New students must therefore enroll in this class at LOW COST TO THE SCHOOL, BUT WITH HIGH INCREASE IN REVENUE. Most importantly though students now have the skills to use the needed equipment.

* When logging into "online programs", I have to use my SSN to login. I don't care how secure the procedure is, I don't like putting in my SSN into anything other than an IRS form!

* I do not feel there is a large need to change our IT logins so frequently.

* na

* SPSS needs to be installed on more computers - those that do have the program are often used by other students and we have to ask them to move, which i do not enjoy doing. additionally, the computer lab that has SPSS on all computers is usually either locked or being used by another class. it would be great if grad students could have their own computer lab with spss on every computer. thank you.

* I'm a 40-something with little knowledge of or interest in computers... I did the best I could with this survey. The changing of login names, etc. has been a bit of a problem, but all in all I have found the system fairly user friendly (with help from husband and classmates).

* It is nice to be able to come and print off things at school without paying if i need to do that. college is expensive enough and it helps. and if something is forgotten for class it is good to have a back up.

* None

* we need alumni e-mail accounts

* I would HATE to have to pay for printing things in the computer lab. Also, I don't like being required to change my password. Security of my password should be up to me.

* Fix ecompanion it functions erratically and has a negative impact on students grades. Make land cad, auto cad and esri, software available in all columbine, sience and engineering labs.

* no comment.

* Limit required passwords for UCCS systems (Student Access online pin, general computer systems logon, cyberclass, E-classroom, E-companion) to two: one pin, one password. More than that is excessive when you consider all of the other passwords/pins the average person must remember for work accounts, bank accounts, e-mail, messenger services, etc.

* i DID NOT UNDERSTAND WHETHER THE PRIORITIZATION OF THESE ITEMS WAS EQUAL TO OUR OPINION ABOUT THE ITEMS. THE IDEA OF STUDENTS HAVING TO PAY FOR PRINTING FROM COMPUTERS IS REDICULOUS.

* Increase the accessibility of the NT accounts at home. It is very slow currently and has many problems.

* nothing that I can think of.

* Wireless network access should be top priority!!

* I think we need more computers in the library - it is SO frustrating to go in and not be able to use those services.

* Not very much assistance with computer repair due to requirements we had to meet to log on to network in dorms. IT took many programs off my laptop that should have been left on. Was not very happy. Otherwise you guys are great.

* you forgot to lower your prices for crappy housing.

* Please do not use social security numbers for anything!! Anybody can see it and steal it. Thanks.

* make it easier to access the network either on or off campus

* Campus wide WIFI network accessable from anywhere on campus!

* A lot of the wall outlets in the study rooms on the top floor of the library do not seem to work. I have a laptop that I connect to the network so I can access the internet and/or my files saved on the student drive. And a lot of the rooms in the library, when I plug in my laptop shows limited connectivity or no connectivity to the network, then I switch rooms and its fine. So if at all possible, could these be checked out.

* Getting to a point where there are rj-45 jacks present in each (or many) classrooms shld be a high priority. For those students with laptops, not everyone has the ability to get on to the wireless network (which is only useful in the engineering building anyway). Having ethernet ports in classrooms would allow students with non-wifi laptops (and alternative operating systems... since microsoft VPN is required for the wireless network) to get on the network when needed.

* Don't do the pay per page printing!!!! Speed up the login/print connection in Math Lab 136.

* Find a way to integrate various log-ins/systems...right now I have a separate username/password for: network login student information system WebCt E-Companion

* The current set up has met my needs as a student. Before you spend money expanding services (cheap software, wireless), I would want to be sure the current services(network support, free paper) are maintained.

* Online or hybrid courses - the same online model does not work for all students, instructors, and courses. Support for online pieces of courses would be great, but allow the instructor the flexibility to determine how much "online" stuff will be helpful.

* There should be more than one multimedia lab, providing access to a/v graphics intensive systems with powerful processing capabilities to accomplish tasks such as video editing, 3D modeling/animation, and webpage development. These computers also need to have their systems updated (hardware and software) constantly to remain optimal. I have noticed that the computers in the Kramer multimedia lab have many bugs and are decked out with spyware/adware, which is an almost inevitable fact of internet

connection. However, their systems could be checked weekly to ensure that they are running optimally, (instead of them simply being left alone for GoBack to fix, since the GoBack disc image constantly restored itself is full of spyware; the problems are simply resurrected every time the system is rebooted!)
* Requirements for email passwords are ridiculously strict. The passwords regularly expire and reinstating a new password requires a trip to compus during business hours. This makes campus email completely useless. Even worse, I can't get access to important information that has been email to my worthless campus account. Suggestion : Remove the password expiration time limit and allow for automated password resetting.
* Get rid of WebMail. It's not very user-friendly. Quit changing the passwords.
* Remove password change policy of 2 or 3 months. Why you treat your password policy like a military one is beyond me. The video conferencing support is pathetic and access to the video editing equipment is nonexistent.
* Open up more computers in the library. Its hard to find an open computer in one of the pods, and the extra room usually has some sort of class in it. Why not put these classes in Columbine that has many more rooms??? I hate having to walk over to Columbine just to get on a computer.
* I use the computer labs and UCCS's library frequently and print out information for my classes. I appreciate being able to use these resources and print documents with out having to pay an additional fee per page.
* Improving the Distance (MBA, but probably all) Websites for better ease of use.
* I am a DMBA Student, so many of the questions regarding on campus issues don't pertain to me...
* Standardize the password systems
* no comment
* Teach instructors to develop and apply on-line courses. Not easy and you have some "on-line" foks who don't get it.
* NOTHING
* Offer distance (online) students the ability to include a laptop as part of the costs of one of the classes. Since many distance students use employee tuition assistance, this would enable them to acquire a computer for school for their use without having to worry about various corporate rules against accessing personal information (especially web mail services like the UCCS email system) from company computers.
* I am a student in the DMBA program. While most of the distance program works pretty well, it could still use further refinement. Required password changes in mid-semester are very disruptive. Registration and payment is often difficult because the SIS program often doesn't work. I also find infromation on the DMBA web site that is inconsistent with the main site. For example, the DMBA web site lists a different tuition rate than SIS. Finally, the DMBA program will often post a mandatory survey that must be completed before logging in. If I only have an hour to study on a given day, I would prefer to postpone the survey until I have the time to complete it. I chose the DMBA program because I am employed full time, and have a busy travel schedule. Whenever there is a disruption in the ability to connect, download files, or register it can have a detrimental effect on my schedule. I often have ohy a few hours a week to study and this is often at an unusual time of day. It is obvious from the survey that you are trying to fix some of these problems, and I support this effort. Thanks!
* I find the UCCS webmail interface pretty cumbersome. It seems fairly slow compared to other web interfaces I use. Could the course registration system be simplified? For example, call numbers. Why not use the course number itself with a section number? Navigation is also nonstandard.
* On-campus computers and printers are very good. Keep it up! Don't waste money on laptops for freshmen. Online classes stink--continue focusing on improvement of on-campus classes.
* Provide support for Mac computer users even in the distance programs, staff lab with people who can assist. Have online instructors get programs tested with computer lab before using in class to ensure compatability with all platforms and ability to actually connect
* Use the system like a online student does, in the form of a usability study and make improvements to create an integrated user experience for your distance students. Two specific examples: Currently, the disparity in systems between the web site, the web-based student admin system, and the e-college system is not consistent and makes your distance offerings more difficult than they need to be. Second, fix the e-college payment system. I get numerous errors each time I use it and I have lost confidence in it to the level that I will phone in from now on. The online bookstore payment system works well. Thanks for changing the login from social security number - that was a serious security problem that when I suggested a correction was actually defended by your staff as not being a security problem. Also, thanks for asking for our views on the system, I hope you can make the changes to improving the online student experience.
* More attention to privacy issues. I identified the school's use of SSN as a privacy issue more than two years ago. It's only been resolved this spring.
* Library VPN support is necessary for distance classes and is virtually non-existent. After hours tech support is lacking throughout your organization. This means youd distance servicess are offered but not fully supported!
* The distance learning site could use a bit of technological advancement to get it into the 21st century. ;)
* Why is the DMBA program separate from the on campus MBA program. It is very confusing.
* Networking issues have become more and more cumbersome over the years. I am now forced to use the campus e-mail system but I can only access it 10% of the time. This has resulted in an unnecessary failure and subsequent withdraw from a class. We should not be forced into the system when we are attending the distance learning, networking issues inevitability arise, and we are stuck...
* I didn't have any problems with my online refresher course except I guess Linda Weaver did not receive some of the e-mails we ladies sent to her during the course. Don't know what happened there. We had to send them to her personal e-mail address for her to get them.