Comprehensive Standard 3.4.14

The institution's use of technology enhances student learning, is appropriate for meeting the objectives of its programs, and ensures that students have access to and training in the use of technology.

___X___ Compliance _____ Partial Compliance _____ Non-Compliance

In 1997 several task forces were formed to study the integration of computing and technology into the curriculum. The recommendation to infuse technology into the educational experience became a critical component of the Vision*Focus*Action [1] plan to improve the learning environment. In response to this recommendation, the Academic and Administrative Technology Committee (AATC) [2] developed plans that identified the needs and institutional priorities for instructional technology [3]. The university has since moved forward with a series of initiatives that have integrated technology into every facet of campus life. Technology-enhanced classrooms, web-enabled curriculum, computer labs, and computing infrastructure have dramatically influenced the way our students learn and the way our faculty teach. The university is now in compliance with the use of technology in the academic environment and is positioned to take advantage of emerging technologies in the future.

Enhancements to Learning

Over the past several years, the university has established an ongoing program to ensure that most classroom instructors have access to instructional technology (specifically, 100 MB network connections, wireless access, TV/VCRs, personal computers, digital video disk players, display projectors, and other peripherals). Secure, ubiquitous wireless access to computing for students and faculty is available in 144 classrooms and instructional spaces plus many public areas across the Belknap and Health Sciences campuses, which are served by 257 wireless access points [4]. Sixty-one of these instructional spaces are equipped with academic technology, including broadband video, internet, multimedia, and/or video projection. Large instructional spaces are equipped with audio amplification. For those classrooms without permanently installed equipment, advanced multimedia and computer presentation equipment are available from either the host academic unit or the IT Instructional Technology/Instructional Support Unit (IT/IS). In addition, the Delphi Center and IT/IS provide equipment-operating personnel and consulting services to assist faculty, students, and staff in delivering the highest quality classroom instruction possible.

The Academic Technology Committee (ATC, formerly Academic and Administrative Technology Committee) coordinates the annual university-wide academic technology assessment with the Office of the Vice President for Information Technology. The committee is chaired by the provost's director of academic technology and has faculty, staff, and student members, who also serve on subcommittees related to instruction, planning, and student computing. Recommendations from ATC in recent years resulted in classroom technology improvements amounting to hundreds of thousands of dollars [5], free/reduced cost licensing for academic software (including SAS, SPSS, EndNote, and RefManager), student response systems in classrooms, and enhancements to the student e-mail system.

Instructional media production support is provided to faculty, students, researchers, and staff by the Delphi Center and Information Technology Television and New Services unit, offering multimedia production, instructional graphics, and research poster and website design. This service also supports the unique large-screen multimedia system requirements of the Gheens Science Hall and Rauch Planetarium, one of only eleven like it in the world. Television services extend beyond campus borders via streaming video, multimedia publishing, and the KET network. Satellite uplink and downlink capabilities complement the student and professional development experience. Multimedia titles currently in distribution include "Complete Denture Fabrication," self published by the School of Dentistry, and "Acland's Video Atlas of Human Anatomy," distributed internationally by Lippincott, Williams, and Wilkins. The Office of Information Technology operates two streaming video servers, one for live events and the other for archived media. Webpages requiring streaming video can be linked to media assets stored on the archive server [6] [7] [8].

Students and faculty in all units use computers, the internet, and special software applications. Blackboard [9], the university's electronic course management system, provides a common, cross-campus learning environment that students and faculty have embraced. All faculty have convenient access to Blackboard, and usage is increasing each semester. Blackboard has grown from twenty-four courses in spring 2001 to 1,158 for spring 2006. Blackboard is administered and supported by the Delphi Center for Teaching and Learning [10], which also provides additional resources and training for faculty. Training ranges from one-on-one consultation to workshops on Blackboard features and how to use them effectively in the classroom. Faculty who teach fully online courses are provided more intensive training each semester with the Delphi Center's "Designing Online Learning," which offers four to five weekly sessions on how to effectively develop online learning. Faculty have also created course-specific websites, where the individual faculty member displays interactive demonstration models, produces student tutoring tools, posts lecture notes, and provides course chat rooms.

Appropriate Technology for Meeting Program Objectives

Priorities and directions for information technology at U of L were set through the Strategic Technology Executive Committee (STEC). The STEC was comprised of leading academic and administrative officers and stakeholders from the university community, including representatives from the vice presidents, deans, provost's office, Audit Services, and the Information Technology unit. The STEC met twice monthly to consider strategic technology issues and proposals, to track progress of major implementations, and to make recommendations to university administration on future technology initiatives. In July 2006, STEC was disbanded, and it was replaced with a new version in August 2006. The new STEC will focus more on strategic issues and less on operational matters than in the past. The new committee will meet less often and will rely more on its subcommittees to manage tactical and operational issues as needed. In this new structure, ATC will become a subcommittee of STEC. Other subcommittees will be the E-Communication Planning Committee (to deal with web, portal, and e-communication issues), the Research Computing Committee, and the Institutional Management Technology Committee (to deal with all enterprise and other administrative application issues).

Virtually all university computing and networking facilities are tailored to assist in satisfying program objectives. Each academic field of study has its own student learning outcomes based on the nature of the subject. Technology serves as a primary enabler for enhancing student learning and for meeting the objectives of all educational programs. The university makes an extensive range of technologies available to students, including, but not limited to, modern computing facilities, high-speed access to the internet, accounts for electronic communication, cutting-edge hardware, productivity and statistical software, access to multimedia equipment, and state-of-the-art research and scientific equipment. All new and renovated instructional spaces are designed by project teams comprised of a representative of the unit sponsoring the project, a university architect, a university certified teaching specialist (CTS), and an IT communications network designer.

The Delphi Center and the Office of Information Technology research emerging technologies in order to further embrace "mobile learning" and to provide students with the most current means of accessing course content. Currently, technology is being developed to allow students to access Blackboard content or other multimedia content not housed on Blackboard via an MP3 player, PDA, or cell phone. Faculty will be trained on the use of these media, as well as on the pedagogy of teaching with technology.

Each program expects all students to have basic computer literacy, including the ability to communicate via e-mail, to access web resources, to create word processing documents and presentations, and to manipulate data in spreadsheets. Depending upon the needs of the discipline, students develop additional expertise through continued use of and exposure to technology. Units have been developing technology plans that include goals to empower faculty, staff, and students to use technology to meet learning objectives, institutional goals, and personal needs in a technologically complex world [11a 11b, 11c, 11d, 11e, 11f, 11g, 11h, 11i, 11j, 11k, 11l, 11m]. After the unit plans are submitted, ATC and IT review them, looking for common themes, unmet needs, potential projects, and emergent themes [12]. This information then feeds IT’s internal planning process and commonly results in proposals to STEC and the provost.

Access to and Training in the Use of Technology

The university provides an extensive information technology infrastructure “backbone” in direct support of the university’s teaching mission. Heavy investment in computer labs across the campus guarantees that all students have access to the equipment and software required for interactive learning [13]. A campus network with a target of at least 100 mbps to the desktop provides communication with 14,933 Ethernet connections, including 909 connections within the libraries. An additional 2,870 Ethernet connections serve residence halls [14]. Low-cost dial-up Internet service is provided for university faculty, students, and staff, with 200 ports supporting 56 kbps service for users off campus. The university is a member of the project Abilene Internet 2 Consortium and hosts one of the premier I2 applications through the Southern Skies Project [15]. In addition to technology available inside the enhanced classroom, remote learning opportunities have been initiated and have increased exponentially over the past several years. The Delphi Center specifically addresses instructional needs of faculty and teaching assistants involved in the creation and delivery of online courses [16]. The university is also part of the Kentucky Virtual University (KYVU), offering the residents of Kentucky a comprehensive

package of online educational resources [17].

Training in the use of technology is provided across the disciplines. For students who are having difficulty using computers and related technologies for their classes, or for those who just want to brush up on their skills, the REACH Computer Resource Center provides drop-in assistance, tutoring, and seminars [18]. Distance education students and faculty have access to the Distance Learning Library Services program, which provides off-campus access to readings and databases and also offers delivery of library resources that are unavailable online [19]. The IT Instructional Technology/Instructional Support unit provides support for classroom technology [20] and individualized training for faculty and staff in specific software [21]. The Information Technology Help Desk is also available to provide information and assistance to all members of the U of L community 24 hours a day, 7 days a week, 365 days a year.

[1] Vision*Focus*Action: Improving the Learning Environment, page 10
3_4_14_fn01.pdf

[2] Academic and Administrative Technology Committee
3_4_14_fn02.pdf

[3] Academic Technology Planning Framework
3_4_14_fn03.pdf

[4] Wireless Locations
3_4_14_fn04.pdf

[5] Computer Resources Overview
3_4_14_fn05.pdf

[6] Pediatrics Program Director--Streaming Video Example
3_4_14_fn06.wmv

[7] Pediatrics Residency--Streaming Video Example
3_4_14_fn07.wmv

[8] Video Atlas of Human Anatomy--Streaming Video Example
3_4_14_fn08.wmv

[9] Blackboard
3_4_14_fn09.pdf

[10] Delphi Center for Teaching and Learning
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http://delphi.louisville.edu/teach_learn/technology.html

[11] Unit Technology Plans
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3_4_14_fn11i.pdf Speed School of Engineering
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[12] Academic Technology, Emergent Themes and Unmet Need
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[13] Instructional Technology/Academic Technology
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[14] Residence Halls: Computer Access
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[15] Southern Skies Project
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[16] Distance Education Training and Support
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[18] Resources for Academic Achievement (REACH)
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[19] Distance Learning Library Resources
3_4_14_fn19.pdf

[20] IT Support for Classroom Technology
3_4_14_fn20pdf

[21] Software Instruction
3_4_14_fn21.pdf