

# **A Technology Plan 2009 - 2012**

## **College of Science and Technology** **Austin Temple Ph.D. - Dean**

### **Preparing members:**

**Mike Land**  
**John Byrd**  
**David King**  
**Bobby Nowlin**  
**Leigh Ann Myers**  
**Catherine McMillan**  
**Bette Howell-Maroney**

# College of Science and Technology

## Three Year Technology Plan

### I. Introduction

The College of Science and Technology recognizes the importance of its leadership role within the university with regard to technological issues. This role is not merely inherited by virtue of the college's name but by the nature of its components. The college has established innovative efforts in areas of:

- (1) development of computer laboratories,
- (2) the use of technology in pedagogical reform,
- (3) on-line tutorials, testing and distance education, and
- (4) utilization of the newest technologies in scientific research.

Every student on campus takes a significant fraction of their curriculum from the department that forms the College of Science and Technology. The use of technology in the college is often the students' first experience with making technology integral to their college life. The utilization of graphing calculators by the Department of Mathematics and the integration of graphing calculators across the College of Science and Technology has afforded a focus on conceptual knowledge rather than mundane algorithmic tasks. The utilization of data gathering devices has been integrated into the curriculum of most college departments. A student being told a fact and then working on its implementation has been in large part supplanted by implementation of ideas derived from gathered and tabulated data. The use of simulations and laboratories that focus on developing thought processes rather than step-wise processes has contributed to the perception that the college is truly in the forefront of technology utilization. As a result, the graduates of the college leave with a wide variety of skills associated with valuable technology experiences (programming, data analysis, instrumental operation, and experimental design).

This document serves to list the objectives achieved under the last long term technology plan and to set forth new goals and objects for the upcoming years. In addition, priorities and policies for implementing various goals within the college are established. The College of Science and Technology has accomplished the vast majority of its previous goals and objectives set forth in relation to the university wide Northwestern State Technology Enrichment Plan (NSTEP). However, increased availability of technology can lead to certain personnel and budgetary issues that should be addressed.

It is important to recognize that, whenever new technologies are developed and implemented, there must be a critical mass of expertise in place to troubleshoot, maintain and update software and hardware. Without full time qualified laboratory technicians, multimedia professionals, programmers, webmasters and other computer experts, one cannot hope to achieve fully effective utilization of new technologies. A centralized multimedia/audio-visual production center staffed with appropriate personnel is a vital asset that is not currently available.

A significant fraction of any sensible budget must include money set aside for maintaining equipment, upgrading software, establishing and maintaining national accreditation of all curricula and for leveraging funds. While the departments in the college have made great strides in bringing themselves into the technology age, their efforts have been, in large part, haphazard and non-coordinated. Monies should be monies set aside to upgrade classrooms and laboratories that are commonly shared by College of Science and Technology faculty. Expansion of computer facilities into all laboratory spaces and creating and maintaining a media production center (i.e. large poster production printer/laminator, flash/Visual basic animation training and basic/advance web design nexus) were unrealized goals of the past plan and are central foci for this new three year plan.

### II. Achievements of the First College of Science and Technology Three Year Plan

#### (1) *Multimedia Classrooms*

Classrooms throughout the College of Science and Technology have been established and some upgrades have occurred.

#### (2) *Technical Personnel*

There has been no personnel employed by the College of Science and Technology to service or provide technical support to the faculty or students. Limited support does exist through the university wide information systems office. Other limited support has been developed and is accessible through Distance Learning & Continuing Education.

**(3) *Maintenance & Support***

As defined by the previous technology plan, upgrades of software, networking and hardware expansion have occurred. Maintenance contracts have not been established.

**(4) *Laboratory Equipment***

In large part creation of computer labs and purchase of digital cameras, CBLs, and upgrades or replacements for computer hardware were completed.

**(5) *Computer Accessibility***

This by far has been the biggest accomplishment for the College of Science and Technology. Computer laboratories for all areas of the college have been developed. Faculty computers have been upgraded past Pentium II, and computer labs are accessible over much of the campus and during the day. A note should be made that computers have become so affordable that much of the concern of the previous committee is no longer an issue. The vast majority of students have their own computer, which was not the case when the first College of Science and Technology plan was devised.

**(6) *Distance Learning***

The development of Internet courses remains a primary goal for the university. While the College of Science and Technology has developed on-line courses, the reality of those courses is not what was previously envisioned. The development and support of these courses is enormous, but they serve very few students. Most of these courses do not serve students with majors in the College of Science and Technology, and they demand valuable time from a professor. As a result, many of the Internet courses have been relegated to adjunct instructors. Video conferencing has become available but is not universal, transparent nor convenient to use.

**(7) *Leveraging Start Up Funds***

No 'Start-Up Fund' has been established.

### **III. General Objectives and Justifications**

The general technology related objectives for the College of Science and technology are to establish and/or enhance support with regard to the seven items listed below:

**(1) *Multi-media Classrooms***

Some classrooms utilized by the faculty of the College of Science and Technology have multimedia projectors. However, the connections and capability of the systems are not transparent. Students and faculty in large science lecture halls, in particular, would benefit immensely from high resolution projection systems. The integration of SMART boards or other similar technology needs to be addressed. Additionally, wireless electronic evaluation hubs should be installed. This item has the added advantages of immediate student impact and large-scale visibility. A college wide directive for the use of such a system is needed, and one system should be selected to avoid a current problem found in our multimedia rooms – non-uniformity.

**(2) *Technical Personnel***

The faculty of the College of Science and Technology has, as a whole, become literate and proficient in the basic and advanced applications of computers and their technologies. However, much of this proficiency has come solely by individual study and trial and error. Electronic Learning and Continuing Education conducts training at varying levels for several commercial programs. However, many of the faculty would like to develop advanced interfaces. The university's experts are generally not able to meet the faculty's needs on a variety of levels. If we are to take advantage of the latest and upcoming technology, professors, technicians, programmers, and other support staff will need to have avenues to interact freely and on a timely basis. Deficiencies in support personnel have been cited in past accreditation efforts. At an institution with the highest

student/faculty ratio in the state and one of the highest in the nation, accessible help will be increasingly needed.

### ***(3) Maintenance and Support***

Student and faculty software upgrades, maintenance contracts for office and laboratory equipment, technology use training sessions for students, faculty and staff are critical. Again, this item is critical for the long-term health of the college and the university.

### ***(4) Laboratory Equipment***

Teaching science and performing scientific research requires new technology, regardless of the discipline. In the College of Science and Technology, most disciplines cannot remain viable without regular infusions of new technology and laboratory equipment, important both for teaching and research. While grants from national, state and local agencies are available for getting monies to upgrade and purchase the latest equipment, these should not be the only resources available.

### ***(5) Computer Accessibility***

While computer accessibility is largely not an issue anymore, full exploitation of the capabilities of our computers is not realized. In many buildings and laboratories, the connections to the school server are on very slow lines. In some instances there are computers with no connection to the NSU server, acting as stand alones. A growing problem is that there are not enough lines and switches to handle an increasing number of computers. As a result, computers are continuing as stand-alones and cannot take advantage of the Internet or of the many functions offered by the local servers.

### ***(6) Distance Education***

While NSU is the largest provider of Internet education in the state, professors still lack the ability to video conference. The few areas that are available for video conferencing are frequently understaffed and because of the difficulty in coordinating times/places this powerful feature is sadly underused.

### ***(7) Leveraging/Start-up Funds***

A concerted, intentional effort should be made to set aside some percentage of university/college funds as matching funds for external grants. Seed grants should encourage innovative applications of technology. Special consideration should be given to technology proposals that establish ties to industry through the Louisiana Board of Regents Enhancement Grants or other funding agencies.

Following this document one can find the original table with goals and objectives for the college as well as the future goals and objectives for the College of Science and Technology.

## **IV. General Principles and Policies**

1. Departments should file technology funding plans annually, in conjunction with the annual departmental budget, indicating details for the expenditure of laboratory fees and other departmental funding sources for the coming academic year.
2. Supplementary proposals may also be submitted to the dean of the college, especially if new funds become available independent of the annual departmental budget. The format for these proposals should follow that of Student Technology Fee Allocation Request Form, when appropriate.
3. Individuals may also submit proposals for funding of technology projects to the dean of the college, especially for start up or seed projects or simply projects that are smaller than departmental scope.
4. The Technology Committee will evaluate all funding proposals submitted by individuals and departments in the college to assess the extent to which the proposal is consistent with the technology

plan of the college and university and with the department's own plans. Recommendations will then be submitted to the dean of the college.

Submitted proposals should be consistent with the university, college and departmental technology plans, in general, as well as with the following specific comments:

1. The college maintains as general principle that some fraction (approximately 20%) of technology resources be set aside for maintenance and upkeep of current equipment.
2. Technology requires technical expertise and staff, beyond individual faculty or committee expertise. Laboratory technicians, multimedia professionals, computer experts, electronic experts, webmasters, programmers, assessment professionals, support staff, etc., are necessities if one is to effectively use technology.
3. Leveraging funds to meet matching requirements for external grants should be set aside in order to stretch the impact of technology funds.
4. Special considerations should be given for seed grants involving innovative technological applications, for technology for new faculty, and for interdisciplinary projects.