Academic Computing Advisory Committee Recommendation

Libraries – Network Infrastructure – Classroom Instruction – Media Center – Distance Education

Essex County College
Instructional Technology Plan
FY 2005 - 2008
# TABLE OF CONTENTS

## CHAPTER

### I INTRODUCTION

- Purpose 1
- Definition of Instructional Technology 1
- Evolution from Middle States Self Study 2
- Evolution from Institutional Strategic Plan 2
- Description of the Academic Computing Advisory Committee 4
- Description of the Chapter Task Forces 5

### II GUIDING PRINCIPLES

### III NEW INITIATIVES SUMMARY

- Introduction 9
- Project Numbering Convention 10
- Year One Initiatives (FY2005) 11
  - Year One Costs 13
- Year Two Initiatives (FY2006) 13
  - Year Two Costs 15
- Year Three Initiatives (FY2007) 15
  - Year Three Costs 16
- Budget Contingencies 17

### IV POLICY IMPLICATIONS

- Network Technology Infrastructure 19
- Classroom Instruction 21
- Libraries 21
- Distance Education 22
- Media Center 32

### V NETWORK TECHNOLOGY INFRASTRUCTURE

- Introduction 33
- Status Statement/Trends/Needs 33
- Project Summary and Priority Listing 36
- Staffing 37
- Professional Development 37
- Individual Project Descriptions 38

### VI CLASSROOM INSTRUCTION

- Introduction 48
- Status Statement/Trends/Needs 48
- Implications of Increased Use of Technology in Classroom Instruction 50
- Project Summary and Priority Listing 52

*continued*
CHAPTER I

INTRODUCTION

Purpose

The Academic Computing Advisory Committee is proposing an Instructional Technology Plan that addresses hardware, software and technical support needs that affect teaching and learning. This plan encompasses new technology based projects that enhance or expand course, degree or certificate offerings; improve the learning environment; provide technical support services; and contribute to student success. The projects proposed represent the grass-roots ideas and efforts of faculty and key administrators.

This plan does not address instructional technology used in the Learning Center or develop distance education policies, both of which are being considered by other college committees.

Definition of Instructional Technology

For the purposes of this document, instructional technology includes all aspects of computer software, hardware and network infrastructure; media center and satellite facilities; audiovisual and digital imaging; technical support services; and specialized electronic and mechanical laboratories that affect the delivery of instruction or assist student learning.
Evolution from the Middle States Self Study

During the 1999 – 2000 and 2000 – 2001 academic years, the Essex County College community participated in developing a comprehensive self-study as part of the Middle-States Accreditation process. After completing the self-study in June 2001, the Middle States Commission on Higher Education awarded the college a Statement of Accreditation, valid for ten years. Commensurate with the accreditation award were specific recommendations for improvement stipulated in the Middle States Report. One of the recommendations called for the college to generally improve its planning processes and incorporate feedback mechanisms to monitor plan progress and to make strategic changes. Specifically, the Commission asked the college to “produce a comprehensive institutional strategic plan, including specific goals and linking long-range planning to the budget process.” The Middle States Commission will monitor the college’s progress on the recommendations through a Periodic Review Report due June 1, 2006.

In response to the Middle-States Commission recommendations, the college hired an Assistant to the President for Institutional Planning that convened the Strategic Planning Committee to develop specific strategies associated with goals identified in the Middle States Report. The Strategic Planning Committee developed the Essex County College Institutional Strategic Plan 2002 – 2005.

Evolution from the Institutional Strategic Plan 2002 – 2005

The college standing committees were asked by Academic Affairs to provide feedback on the Institutional Strategic Plan. In response to that request, during the 2002 – 2003 academic year, the Academic Computing Advisory Committee (ACAC)
developed a general plan evaluation criterion (see Appendix A.). ACAC applied that
criterion to its review of technology components of the strategic plan to determine
whether those components continued to be relevant and supportive of teaching and
learning. Subsequently, ACAC formulated and proposed technology based strategies that
address institutional strategic plan goals one, four and six as follows:

1. The enhancement and coordination of developmental education, advising,
tutoring, mentoring and other academic support services to promote greater
retention and student success.

4. Enhance Academic Quality.

6. Create effective and efficient administrative and technology infrastructure to
support programs and mission.

ACAC developed additional strategic recommendations (see Appendix B) using the same
format, numbering convention and evaluation measures as the original strategic plan
document. ACAC also urged the development of a comprehensive technology plan for
the college. The ACAC recommendations covered:

♦ Providing technology/staffing support for a new learning center,

♦ Establishing an upgrade schedule for hardware located in academic computing
labs, specialized labs and faculty offices

♦ Providing centralized printing

♦ Providing resources to enhance information literacy

♦ Enhancing security and efficiency of academic computing labs

♦ Enhancing the SCT Banner system, and
Developing a comprehensive technology plan

The ACAC strategic recommendations were forwarded to Academic Affairs in Spring 2003. During the Summer of 2003, the Vice President of Academic Affairs convened a technology planning committee to develop an Institutional Technology Plan. The committee consisted of the deans, director of budgeting, director of personnel, director of information technology, the chair of ACAC and the academic vice president. The ACAC strategic recommendations were presented to the Technology Planning Committee to use in the development of an Institutional Technology Plan. However, the Technology Planning Committee did not complete its work.

During the Spring of 2004, the Academic Vice President asked ACAC to formulate an Instructional Technology Plan. This plan represents the efforts of the Academic Computing Advisory Committee members, the Associate Dean of Library and the Director of the Media Center.

Description of the Academic Computing Advisory Committee

The Academic Computing Advisory Committee is a representative body of faculty, administrators and students that reports to the Deans’ Council through the Dean of Academic Services and the Dean of Faculty alternately, regarding policies and procedures that directly affect the use of computing. ACAC’s mission is to make recommendations regarding all policies and procedures that affect the use of computers in academic programs, including making
recommendations regarding the use of computer laboratories, use of computers by faculty, and the establishment of purchase and upgrade priorities.

Descriptions of Chapter Task Forces

The following ACAC members, administrators and faculty contributed to the development of Instructional Technology plan. The liaisons convened the task forces, collected and organized the information and wrote chapter drafts.

I. Introduction
   Liaison: Alvin Williams

II. Guiding Principles
   Liaison: Alvin Williams

III. New Initiatives Summary
   Liaison: Alvin Williams

IV. Policy Implications
   Liaison: Alvin Williams

   Members:
   All ACAC Members

V. Network Technology Infrastructure
   Liaison: Alvin Williams

   Members:
   Ron Bannon Charles Jones
VI. Classroom Instruction
   **Liaison:** Doris Tori

   **Members:**
Pateesh Freedman    Mila Bruan
Jose Chestnut      Rita Higgins
Barbara Kelly      Ron Bannon
Alvin Williams     Keith Kirkland
Elvy Viera         Robert Spellman
Michael King       Angel Millan
Leonard Parrino    Jill Stein

VII. Libraries
   **Liaison:** Gwen Slaton, Associate Dean Library

   **Members:**
Alvin Williams    Rita Willis

VIII. Distance Education
   **Liaison:** Ron Bannon

   **Members:**
Alvin Williams    Robert Spellman
Charles Jones

IX Media Center –
   **Liaison:** Nadine Shaw, Director MPT

   **Members:**
Gwen Slaton, Associate Dean Library
Alvin Williams
CHAPTER II
GUIDING PRINCIPLES

Principles were developed as guidelines for reviewing recommendations for this instructional technology plan. The principles are based on the Essex County College Values Statement and strategic goals one, four and six from the Institutional Strategic Plan 2002 – 2005. The guiding principles are as follows:

Student Success

• All initiatives of the plan will be measured against their impact on student success.

Improvement of Learning Environments

• The primary goal of the plan is to improve libraries, classrooms, computer laboratories, specialized labs and other learning environments.

• Effective teaching and learning environments will require network connectivity and integrated instructional technology.

• State-of-the-art facilities are needed to support courseware development and the delivery of instruction via distance technologies.

• A technical support structure is needed to assist distance education faculty and students.
Expanded Offerings

- A secondary goal of the plan is to strengthen existing programs to be more responsive to students’ educational and employment needs.

- The college must be responsive to changing employment-market forces as it provides new opportunities and career choices to students. New and emerging degree and certificate programs may require investment in technology to deliver instruction.

Resource Management

- Institutional commitment to instructional technology will require use of operational and capital dollars, not only grants or other external funding.

- Planning must address the full cost of technology, including equipment, software, maintenance, replacement, training and staffing.

- Costs of individual projects may change as a result of the college bidding process, vendor price changes or changes in project specifications.
CHAPTER III
NEW INITIATIVES SUMMARY

Introduction

The chapter liaisons determined a general priority for listing plan projects using the guiding principles described in Chapter II. The following priorities and rationale were established:

1. **Library** - The liaisons feel the Library is one of the most valuable academic resources for students. Since the library provides research tools for all students across all majors of the college, the liaisons agreed that library projects should be given first priority in the listings.

2. **Network Infrastructure** - the provision of network and Internet services to all classrooms; the enhancement of academic labs; and the provision of computing hardware and software to faculty is considered second priority in the listings. Network Infrastructure projects will improve overall computing services to faculty and students and provide the necessary underpinnings for distance education technologies.

3. **Classroom Instruction** - Includes instructional technology used in classrooms (like “smart rooms”) and specific divisional strategies. Because the divisional strategies affect a relatively smaller number of students, the liaisons believe a third priority in the listings is appropriate.

4. **Media Center** – The projects proposed in the Media Center chapter improves facilities of the Mary Burch Theatre, Rooms 2131/2132, the gymnasium and cable
channel 22. These improvements will enhance the college’s ability to earn revenue from organizations that might choose Essex as a venue for shows and meetings and provide a mechanism to deliver distance education telecourses. The provision of community services is considered a secondary college service by the liaisons.

5. **Distance Education** – Distance Education is a new area in which the college wants to embark. Because a new population will be pursued (that currently is not represented within the existing student body), the liaisons agreed to give Distance Education last priority in the listing of projects.

The chapter liaisons determined year one, two and three priorities for their respective chapters, then the above order was used to list overall year one, two and three initiatives.

**Project Numbering Convention**

Each project is associated with a number formatted as follows:

```
chapter . priority
```

For example, 5.2 means “chapter V, priority 2 project.” Detailed information about a specific project can be found within the Individual Project Descriptions of the chapter indicated. The individual project descriptions provide rationale, specific goals, benefits, needed resources, evaluation and next steps for each project. The individual chapters provide current status, technology needs and staffing and professional development requirements.
Within the Classroom Instruction projects in chapter VI, some priorities include a divisional designation (BED – Bilingual Education, BIO – Biology and Chemistry, BUS – Business Division, CFT – Center for Technology, SOC – Social Sciences). Detailed information about these projects can be found within the *Divisional Approaches to Use of Technology* section of the Classroom Instruction chapter.

Occasionally, “TBD” will appear as a project cost. TBD means the cost is “to-be-determined.”

### Year One Initiatives

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Grant $(G)$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Operating $(O)$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Capital $(C)$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Student Fee $(F)$</td>
</tr>
<tr>
<td>7.1</td>
<td>Bibliographic Instruction/Information Literacy</td>
<td>5,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>7.2</td>
<td>Expansion of Access to the Internet</td>
<td>1,500</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>7.4</td>
<td>Pay per Page Duplication</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>7.5</td>
<td>ECCOPAC Upgrade Project</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>7.6</td>
<td>Maintenance of the Standards</td>
<td>425,000 annually</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>5.1</td>
<td>Classroom Networking Project</td>
<td>50,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.2</td>
<td>Internet/Intranet Video/Audio Streaming Project</td>
<td>65,000</td>
<td>I (5.1 required)</td>
<td>C</td>
</tr>
<tr>
<td>Section</td>
<td>Project Description</td>
<td>Budget</td>
<td>Cost Category</td>
<td>Support Category</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>--------</td>
<td>---------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>5.3</td>
<td>Wireless Network Access Project</td>
<td>15,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.4</td>
<td>Student Login Authentication and Accounting System Project</td>
<td>40,000</td>
<td>S</td>
<td>C/F</td>
</tr>
<tr>
<td>5.5</td>
<td>Commercial Networked Copier Project</td>
<td>75,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.7</td>
<td>College Bandwidth Enhancement Project</td>
<td>36,000 annually</td>
<td>I (support 5.1 &amp; 5.2)</td>
<td>O/F</td>
</tr>
<tr>
<td>5.8</td>
<td>Web Banner Enhancement Project</td>
<td>0</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>5.9</td>
<td>Computer Replacement Plan for Academic Labs</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.11</td>
<td>Adjunct Faculty Email Project</td>
<td>0</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.12</td>
<td>Computer Replacement Plan for Staff</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.1</td>
<td>“Smart Room” Multiuse Multimedia Project</td>
<td>260,000</td>
<td>S</td>
<td>C/G</td>
</tr>
<tr>
<td>6.2</td>
<td>Ceiling Mounted Projectors</td>
<td>48,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT5</td>
<td>CS Software</td>
<td>27,000</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>6.CFT3</td>
<td>ET Software</td>
<td>11,400</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>6.BED1</td>
<td>Multimedia Language Resource Center (MLRC) Project</td>
<td>115,000</td>
<td>S</td>
<td>C/G</td>
</tr>
<tr>
<td>6.CFT6</td>
<td>Microsoft IT Academy Funding</td>
<td>5,000 annually</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>9.1</td>
<td>Video Services Enhancement</td>
<td>38,300</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>9.2</td>
<td>Renovation of 2131/2132</td>
<td>300,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>Project Title</td>
<td>Cost $</td>
<td>Stand Alone (S) or Integrated Project (I)</td>
<td>Recommended Funding Source:</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------------</td>
<td>--------------</td>
<td>-------------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>7.3</td>
<td>Online Database Project</td>
<td>TBD</td>
<td>S</td>
<td>Grant $ (G)</td>
</tr>
<tr>
<td>7.6</td>
<td>Maintenance of the Standards</td>
<td>425,000 annually</td>
<td>S</td>
<td>Operating $ (O)</td>
</tr>
</tbody>
</table>

**Year One Total Costs:**

- Capital: $743,300 + TBD items
- Grants/Capital: $377,800
- Operating: $699,400

**Year Two Initiatives**

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source:</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.3</td>
<td>Online Database Project</td>
<td>TBD</td>
<td>S</td>
<td>Grant $ (G)</td>
</tr>
<tr>
<td>7.6</td>
<td>Maintenance of the Standards</td>
<td>425,000 annually</td>
<td>S</td>
<td>Operating $ (O)</td>
</tr>
<tr>
<td>Section</td>
<td>Description</td>
<td>Cost</td>
<td>Status</td>
<td>Approval</td>
</tr>
<tr>
<td>---------</td>
<td>-------------------------------------------------------</td>
<td>-----------</td>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td>5.6</td>
<td>Network Security Enhancement Project</td>
<td>90,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.7</td>
<td>College Bandwidth Enhancement Project</td>
<td>36,000</td>
<td>I</td>
<td>O/F</td>
</tr>
<tr>
<td></td>
<td>(support 5.1 &amp; 5.2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.9</td>
<td>Computer Replacement Plan for Academic Labs</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.10</td>
<td>Student Email Project</td>
<td>30,000</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>5.12</td>
<td>Computer Replacement Plan for Staff</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.1</td>
<td>“Smart Room” Multiuse Multimedia Project</td>
<td>260,000</td>
<td>S</td>
<td>C/G</td>
</tr>
<tr>
<td>6.2</td>
<td>Ceiling Mounted Projectors</td>
<td>48,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT6</td>
<td>Microsoft IT Academy Funding</td>
<td>5,000 annually</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>6.BUS1</td>
<td>Digital Legal Classroom</td>
<td>$150,000</td>
<td>S</td>
<td>C/G</td>
</tr>
<tr>
<td>6.CFT1</td>
<td>Programmable Logic Controller Project</td>
<td>24,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT2</td>
<td>Mechanical Processor Project</td>
<td>10,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT4</td>
<td>Network Lab Pack Project</td>
<td>60,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.BIO1</td>
<td>Data Carts (Computer &amp; Projector)</td>
<td>10,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.SOC1</td>
<td>Multimedia (TV, VCR, DVD) System for Massage Therapy Program</td>
<td>1,500</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT7</td>
<td>Hydraulic Test Equipment</td>
<td>10,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>Priority #</td>
<td>Project Title</td>
<td>Project Cost $</td>
<td>Stand Alone (S) or Integrated Project (I)</td>
<td>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------------------------------</td>
<td>----------------</td>
<td>------------------------------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>7.6</td>
<td>Maintenance of the Standards</td>
<td>425,000 annually</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>5.7</td>
<td>College Bandwidth Enhancement Project</td>
<td>36,000 annually</td>
<td>I (support 5.1 &amp; 5.2)</td>
<td>O/F</td>
</tr>
<tr>
<td>5.9</td>
<td>Computer Replacement Plan for Academic Labs</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
</tbody>
</table>

**Year Two Total Costs:**

- **Capital:** $371,800 + TBD items
- **Grants/Capital:** $410,000
- **Operating:** $756,000 + TBD items
<table>
<thead>
<tr>
<th></th>
<th>Project Description</th>
<th>Cost</th>
<th>Type</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.12</td>
<td>Computer Replacement Plan for Staff</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.1</td>
<td>“Smart Room” Multiuse Multimedia Project</td>
<td>260,000</td>
<td>S</td>
<td>C/G</td>
</tr>
<tr>
<td>6.2</td>
<td>Ceiling Mounted Projectors</td>
<td>48,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT6</td>
<td>Microsoft IT Academy Funding</td>
<td>5,000 annually</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>9.1</td>
<td>Video Services Enhancement</td>
<td>38,300</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>9.9</td>
<td>Transition to High Definition Television ~ Upgrade facility and equipment</td>
<td>436,500</td>
<td>S</td>
<td>G/C</td>
</tr>
<tr>
<td>9.10</td>
<td>Gymnasium Sound Project</td>
<td>40,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>8.2</td>
<td>Technical Support Staff Project</td>
<td>180,000 annually</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>8.3</td>
<td>Online College Services Project</td>
<td>110,000 annually</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>8.4</td>
<td>Telecourse Project</td>
<td>0</td>
<td>I (media center 9.2, 9.3, 9.4, 9.7)</td>
<td>O</td>
</tr>
</tbody>
</table>

Year Three Total Costs:

- Capital: $126,300 + TBD items
- Grants/Capital: $696,500
- Operating: $756,000
Budget Contingencies

The Committee has carefully deliberated and prioritized the above projects based upon their impact on student success. However, given differing administrative priorities or current and future economic realities, the schedule and selection of projects to be implemented in years one, two and three may change. The Committee recommends the following procedures be used to address changes or budget contingencies.

Capital Expenditures:

1. Fund capital projects in the order listed to the extent funds are available.
   Remaining capital projects will be pushed to the next year. As a result, some year one projects will be pushed to year two. Some year two projects will be pushed to year three. Some year three projects will be pushed to year four, and so on.

2. Capital projects that receive external funding from grants will be implemented immediately, regardless of priority.

Operating Expenditures:

1. Adequate operating funds may not be available to hire the ideal number of people to optimally implement a given project, however the administrative goal should be to continue hiring qualified individuals over time until the optimum personnel level is reached. For example, the library requires eight additional librarians on staff to meet ACRL standards. The college may only
be able to hire three librarians in the first year, but the administrative goal would be to eventually have eight librarians.

2. Operating projects that receive external funding from grants will be implemented immediately, regardless of priority.

3. Operating projects required to support existing programs will be implemented immediately, regardless of priority.

4. Fund operating projects in the order listed to the extent funds are available. Remaining operating projects will be pushed to the next year. As a result, some year one projects will be pushed to year two. Some year two projects will be pushed to year three. Some year three projects will be pushed to year four, and so on.

Changing Project Priorities:

A review group consisting of division chairs, the Dean of Faculty, the Academic Vice-President and faculty representatives should be formed to review changes in project priorities. The group can also re-assess projects over time to determine whether a project continues to be relevant to teaching and learning.

Monitoring Plan Progress:

Periodically, an Academic Affairs representative should communicate with college standing committees and the college community, updating them on implementation progress of the Instructional Technology Plan. The update should include a list of implemented projects and any changes made to the projects or to project priorities.
CHAPTER IV
POLICY IMPLICATIONS

Some initiatives proposed in this plan require the development of policies and procedures to address specific issues arising from their implementation. The policy implications are presented by chapter.

Network Technology Infrastructure:

The Student Login Authentication and Accounting System Project 5.4 will require new policies and procedures that apply to administration of student accounts. Students will be required to enter a user name and password to utilize the open computer labs. The user names will also have an attached printing quota. Policies and procedures are needed to address password changes, replenishment of print quota and other account issues. In addition, policies and procedures are required governing the administration of student email accounts proposed in the follow-up Student Email Project 5.10.

Similarly, new policies and procedures are required for the administration of adjunct faculty email accounts proposed by the Adjunct Faculty Email Project 5.11.

The Commercial Networked Copier Project 5.5 will require policies and procedures that govern the electronic submission of printing jobs to the college print shop and electronic billing of divisional/departmental accounts.

Regarding the implementation of the Computer Replacement Plan for Academic Labs 5.9, there continues to be faculty concern about the communication process (or lack of communication) between Information Technology and affected
divisions. Recently, computer laboratories throughout the college were upgraded with new computers containing zip drives. Faculty and students using older “floppy-disk” media were caught off guard. There continues to be challenges for some users to switch between zip and floppy media as some faculty office or home computers do not contain zip drives. Faculty would have welcomed the opportunity to provide feedback prior to the computer labs being upgraded, assuring a smoother transition.

In the Fall 2001 semester, the Academic Computing Advisory Committee discussed the communications issue and developed a recommendation for a communication process and forwarded it to Deans’ Council. The Communication Process Regarding Replacement/Upgrade of Lab (Including Learning Resources) recommendation is located in Appendix E. The Committee is again urging this procedure or similar be followed as a matter of policy to minimize inconvenience to faculty and students in the wake of academic lab upgrades.

In connection with the Computer Replacement Plan for Staff 5.12, there are two issues.

1. Some faculty are in need of upgraded computers to evaluate student assignments submitted on zip disks and to run the latest software used in courses. The faculty computer upgrade process needs to be expedited.

2. The Adjunct Faculty Email Project requires adjunct faculty offices to be supplied with computers that enable adjuncts to access college email and utilize the computers for course related work and activities. New policies and procedures are required to address equipment security
within adjunct faculty offices. Currently, adjunct offices in most areas are not secure.

**Classroom Instruction:**

Additional multimedia and “smart” classrooms are being requested, however, the administration is advised to form a faculty users group that will provide input on the design and location of multimedia and “smart” classrooms. The faculty users group can provide input to maximize teaching effectiveness and student learning.

New policies and procedures are required to address “smart” and multimedia classroom security. The current security policy/procedure hinders faculty access, particularly for adjunct faculty. It is suggested that Division chairs and program coordinators be authorized to administer access codes for the rooms. Any security policy must facilitate faculty access, while maintaining room security. The policy should be regularly reviewed and updated as security technology changes.

ACAC recommends the designation of a multimedia classroom as “floating/open” to address scheduling needs. Faculty scheduled in regular classrooms may want to utilize a smart room for lectures containing multimedia content. Policies and procedures for multimedia room reservations need to be developed.

**Libraries**

Among the proposed library projects is a pay-per-page duplication project that will generate revenue and reduce vandalism to the library collection. Currently, Auxiliary Services manages the copier center equipment used in the library, but Auxiliary Services is not aware of the high use and loss of revenue to the college during library
copier down-time. Library personnel can manage the copier center more efficiently and can make appropriate preparations for upgrades and replacements. A new policy and procedure is proposed whereby the Library assumes responsibility for all duplication operations at the:

- Copier Center
- Microfilm Printer Center
- Public Access Research Computers
- Information Literacy Classrooms
- Periodicals Online Research Center

**Distance Education**

Before the college moves forward in providing web enhanced, ITV, WebCT, and telecourses, policies and procedures governing distance education must be put into place. The following article reprinted from ACE Division of Government and Public Affairs website adequately outlines the issues a comprehensive distance education policy should address:


The following is a primer on the issues an institution will confront as it plans to integrate, implement, and harmonize distance education into its existing policies.

A core policy that must be examined is the institution’s intellectual property policy. Thereafter, principal issues to be addressed include: intellectual property policies with respect to ownership of a distance education course; institutional and faculty rights and responsibilities after a course is created; faculty compensation, teaching-load and acceptance; student access and privacy; potential liabilities associated with distance education courses (including copyright infringement liability); and accreditation and approvals beyond state and national borders.

**I. Intellectual Property Policies Implicated**
One of the first steps an institution should take when developing a distance education policy is to review the institution's existing intellectual property policies and determine whether they need revision in light of this relatively new learning modality. An on-line learning policy will implicate patent, copyright and software policies, and for some institutions, their trademark, multimedia and videotaping policies. The examination of these intellectual property policies often will force the institution to consider the relative balances between its various missions, including, for example, research, dissemination of knowledge, commercialization of technology and public service.

Most institutions will find that a revision of their intellectual policies will be necessary because distance education intellectual property issues cannot be neatly governed by any one of those single policies. Faculty often argue that material prepared for distance education courses should be governed by an institution's copyright policies which typically vest ownership and other rights in faculty, while others focus on the costs to the institution and argue that the institution's patent policy should govern because of the significant institutional resources and support that typically are invested in an on-line course. Similarly, some institutions have attempted to apply existing courseware policies to distance education issues. Computer science and telecommunications departments believe that to the extent faculty works rely on and incorporate the resources of those departments, they should share in whatever benefits flow from the creation and production of such courses.

The revisiting of the institution's intellectual property policies, on the other hand, creates an opportunity for the institution to:

1. Clarify what is intellectual property and the circumstances under which the institution will assume the costs of protecting intellectual property. A patent protects ideas, but patent registration is expensive, particularly if the patent is prosecuted internationally, and a patent generally lasts 20 years. Some forms of software may be protected by patents. In contrast, copyright protects the particular expression of facts and ideas, and so it is more limited in scope than a patent, is relatively inexpensive to obtain, and lasts far longer than a patent. Software may also be protected by a copyright, albeit more narrowly than a patent. Also, consider that the institution's technology transfer office may usefully negotiate licenses, royalty agreements, and marketing agreements.

2. Define inventor and author rights including rights of revision and adaptation, reproduction, display and the most important, ownership, which is discussed more fully below. For example, the institution must address whether faculty will be able to prepare course work for unaffiliated distance education providers and whether faculty will be able to use copyrighted work after the faculty member leaves the institution, or whether the faculty member can prevent the use of the work because it is outmoded or dated. The answers to these types of questions likely will implicate the institution's conflict of interest policies.

3. Identify when and how the institution can use intellectual property generated by faculty whether it is via ownership or licenses, exclusive, non-exclusive, for internal and non-commercial purposes only and what temporal or employment-related limitations exist.
4. Clarify how faculty will be compensated for the development and preparation of distance learning courses and how the parties will share in any royalties generated by the courses. Clarify how the authorship of distance education courses will affect promotion and tenure.

5. Identify who will administer the institution’s intellectual property policies, what is the default mechanism for circumstances not specifically enumerated in the institution’s intellectual property policies, and what will be the initial dispute resolution mechanism.

6. Clarify when the inventor or author can use the institution's trademarks, e.g., name and logos, when commercializing a work.

II. Ownership of Distance Education Courses

A. Basis for Ownership

As noted above, because so many rights devolve therefrom, a critical issue when formulating a distance learning policy is who will own the on-line course. One of the first exercises in determining who will own an electronic course is to consider the various legal bases for ownership: (1) the employee-employer relationship, which may be subject to the terms of a collective bargaining agreement and/or state law for public institutions; (2) faculty policies and handbooks; (3) state laws relating to public institutions; (4) research contract requirements, whether from federal grants and contracts or industry sponsorship agreements; (5) federal procurement requirements; and (6) common law, traditional or customary rights, such as academic freedom.

B. Models of Ownership

Under existing copyright and patent policies that are prevalent on campuses today, institutions vest ownership of the copyright in traditional academic works in the faculty member and vest ownership of patents in the institution. Thus, many institutions that have attempted to fold the ownership issues related to distance education courses into existing policies have arrived at an ownership scheme similar to the following, which uses copyright as the basis for ownership:

1. The copyright for an electronic course that a faculty member created on his or her own initiative in the course of fulfilling teaching duties, will be owned by the faculty member.

2. The copyright for works created under a contract with the institution, or works created as a work for hire, will be owned by the institution. Thus, the copyright for works created by non-faculty employees within the scope of their employment, or works created by a faculty member who was required to create such courses as a condition of his or her employment, will be owned by the institution. Whether a course was assigned or was the idea of a faculty member is a touchstone for many institution's ownership issues. As discussed more fully below, several institutions are incorporating requirements for the development of on-line courses in their new faculty contracts.
3. The copyright for works created by faculty and a party whose contribution would be a work for hire will be jointly owned by the institution and the faculty member.

Some institutions have evaluated ownership of electronic courses as being on a continuum depending on the investment of the institution. If substantial institutional resources were used to develop or produce an electronic course, even one created on a faculty member's initiative, the institution will either jointly or entirely own the copyright for the course. A trend is to use the work-for-hire model when substantial institutional resources are used. A study done by Oklahoma State University Institute for Telecommunications in 1996 showed that most on-line courses were treated as works for hire by institutions and thereby reflect institutions' ownership based on contractual obligations or the use of substantial resources. The key issue to be addressed in such policies is establishing a definition of "substantial."

Other institutions have a model that vests copyright in the institution for a finite period of time, which may or may not be linked to the faculty member's employment institution, and provides that after that period, ownership will revert to the faculty member.

Some institutions have adopted a model used by academic publishers under which ownership is transferred to them, but the faculty member is given a non-exclusive, loyalty-free license to use the work in his or her own classes or at a new institution employing the faculty member. Alternatively, if the faculty member owns the copyright and the faculty member leaves, the institution may be granted a non-exclusive, royalty-free license to continue to use the work for its instructional purposes, but may not otherwise commercialize the work.

The challenge is to devise a policy that encourages development of on-line courses. At one university, the faculty refused to participate in on-line courses if they had to give up ownership.

C. The AAUP and Ownership

The American Association of University Professors' ("AAUP") June, 1999 policy statement reaffirms that faculty "ordinarily" should retain ownership to distance education courses they create, although it recognizes that technology has created some gray areas, such as when "specialized" institutional services or resources are used. Nevertheless, AAUP agrees that a college or university may retain ownership in distance education materials created by professors if such materials are work for hire, a joint work, or were created under a contractual obligation. However, the AAUP does not believe that editing on-line courses or the provision of marketing services should create ownership rights for an institution. The AAUP agrees that institution may require reimbursement for unusual financial or technical support, and recommends that such reimbursement derive from future royalties or a license that enables the institution to use the work for its internal purposes.(1)

D. Third Parties and Ownership

Another factor to consider is how ownership may impact third party relationships
including external funding and licensing. Some sponsors may want joint ownership of courses, including electronic courses, generated through their sponsorship. Some institutions have contracted with other institutions to develop on-line courses including course descriptions, syllabi and content. Institutions should be careful when engaging another entity for such work because although the institution may have paid for such work, unless a written contract expressly states that the project will be a work for hire, the developer will own the copyright of the work. The agreement should specify that the institution owns the electronic course but does not gain ownership of the creator's pre-existing materials. At a minimum, the agreement should specify that the institution has been given a license to use the electronic course for a specific purpose and length of time.

After ownership is established, the bundle of rights that typically flow from copyright ownership, e.g., the right to reproduce the work, create derivative works, distribute copies, perform and display the work, the right and responsibility to police the copyright and prevent infringement, may be negotiated. Not surprisingly, the AAUP advocates that professors retain the right of reproduction for on-line materials, the right to use such materials in future scholarly work, and the right of first refusal for future revisions.

III. Faculty Issues

Principal concerns for faculty members in a distance education policy are ownership and the right to use, discussed above, and the workload credit, compensation and support they are given for designing and producing on-line courses. Each of the following issues must be addressed when considering the impact of on-line courses on faculty:

- Will teaching load credit be given for course development?
- Will faculty be expected to devote more time to the development of new courses after the successful launch of an on-line course?
- How much credit for on-line course development will be given during the promotion and tenure process?
- How much time will be allocated for preparation?
- Will the institution recognize that course material preparation will be altered and delivery to different student audiences may increase the work load. Recognizing that on-line teaching requires the development of new skill sets for most faculty members, what type of technical support and training will be provided?
- How will class size be affected by on-line instruction?
- How will on-line instruction affect faculty office/contact hours?

Existing faculty agreements must be reviewed to determine what type of contracts have been executed by various faculty members, e.g., is the contract written, is it a standard contract, what does the contract say about research obligations, workload, academic obligations and intellectual property. What does the faculty handbook say about curricular development, promotion and tenure and intellectual property? Has the institution adopted AAUP policy statements? If the design and production of on-line courses will be mandatory, many of the foregoing policies will need to be revised and reconciled.
Creating a new policy or changing an existing faculty policy requires a concerted effort on the part of both the faculty and administration. Good reasons for adopting or modifying the appropriate policy must be provided. The different stakeholders (e.g., tenured faculty, non-tenured faculty, students and administrators) and their agendas must be identified and consideration given to how they will be impacted by the policy. Different academic disciplines within the institution will have different perspectives, cultures and experiences with distance education. Distance education has been well-embraced by some disciplines including medicine, engineering, computing, business and foreign language studies, while its acceptance in other disciplines has been less extensive. Thus, the history department, school of medicine, business school and law school may have very different cultures and expectations regarding their use of distance learning.

IV. Student Issues

A. Increased Access?

A number of institutions have pursued on-line distance education programs because of the potential to improve access to students, e.g., improve educational opportunities to geographically remote students, non-traditional students, and students suffering a disability. Recent reports,2 however, question the utility and accessibility of distance education. The reports indicate that although many have advocated distance education as a way to increase access to educational opportunities, poor and less educated students are less likely to have access to computers or on-line services and will not be able to participate in on-line programs. The reports also note the high attrition rate of on-line courses and query whether such access is meaningful given the low completion rate.

Further, the costs associated with distance learning are not necessarily greater or less than those for traditional face-to-face teaching. The costs are simply different, e.g., instead of traditional on-campus education costs, institutions must pay for licensing fees, royalties, technology infrastructures including hardware and software, support networks, access fees, linking fees, supplementary services for marketing, registration and testing. In fact, some institutions charge more for on-line courses than those taught physically on campus.

B. Serving Disabled Students?

Some schools cite their ADA policies as a mandate to provide on-line education to the extent feasible to serve disabled students. Although distance education may serve students who have mobility disabilities, distance education is less friendly than traditional education for students suffering from certain disabilities, e.g., visual disabilities.

C. Privacy Issues

Finally, institutions must consider the privacy implications for students enrolled in distance education programs. Some institutions have requested that the students participating in a distance education program execute a release or waiver permitting the rebroadcast of the student's image or on-line contribution.
V. Limiting Liability

A. Copyright Infringement and the Fair Use Exemption

Educators often incorporate the copyrightable works of third parties in their courses and generally rely on licensing, the Copyright Act's educational use exemption, or fair use, to do so. The May, 1999 distance education report of the U.S. Copyright Office concluded that licensing was not working well for on-line courses. It also found that the instruction or educational use exemption was of limited utility to on-line educators. In determining whether the use of certain materials constitutes fair use, the following factors are weighed and balanced: (1) the purpose and character of the use, including whether the use is commercial or educational; (2) the nature of the copyrighted work; (3) quantity and substantiality of work copied in relation to its whole; and (4) whether it will compete with or damage the market for the original work.

In general, commercial works, even commercial works with an educational purpose, generally are disfavored. Thus, an on-line course that will be marketed to other institutions may be deemed a commercial use that attenuates a fair use claim. Similarly, works that incorporate substantial portions of prior works probably will not be entitled to a fair use defense. If an individual wishes to incorporate a prior work and such incorporation will not constitute fair use, then the individual must secure a license from the copyright holder. Without a fair use exemption or a license, the incorporation of the third party's work will constitute copyright infringement.

To minimize the possibility that copyright infringement will occur, or the liability that stems therefrom, institutions should develop concise, comprehensive policies that cover the types of materials incorporated in distance education courses. The policies must be distributed to students, faculty and staff. To the extent feasible, they should acknowledge their agreement to adhere to institutional policy.

- What materials will be included in the course?
- Who owns those materials?
- What systems are in place to secure and monitor clearances for third party works?
  Do the clearances cover electronic distribution?
- Does the first page of a distance education transmission include a copyright warning?
- Who are the intended recipients?
- Where will the course be transmitted? Are these "secure" sites?
- Will the courses be retained on institution-owned servers and equipment?
- What technology is used to prevent unauthorized access, redistribution or downloading?
- Do the instructors receive materials from distant sites and retransmit them?

Administrators should also take steps to secure the liability safe harbor protections available to nonprofit educational institutions and libraries, under the Digital Millennium Copyright Act ("DMCA"), for infringing activities of faculty, staff, and students on the institution's network.

B. Warranties Augmenting Risk

Further, most publishers and distributors of distance education courses require a
warranty that the party with which it is entering an on-line learning agreement own or have permission to use the content and that all the permissions and releases have been obtained. The publishers and distributors also request indemnification for any losses that the publisher or distributor will incur as a result of a breach of that warranty.

C. Changes Proposed to Existing Copyright Law

The existing copyright law poses serious impediments for the development of distance education. Currently, Section 110(1) of the Copyright Act allows instructors to display or perform certain copyrighted works when providing live, face-to-face instruction in a non-profit educational classroom setting.

Section 403 of the DMCA directed the Registrar of Copyrights to give Congress recommendations to promote on-line distance education. In April 1998 Senator Hatch requested an exemption from DMCA for distance education, but instead a proposal was made for a study that would consider (1) the need for an exemption, (2) the categories of works, (3) quantitative limits on portions of works, (4) parties who would get exemption, (5) parties who would be eligible recipients, (6) whether and what type of technical measures can be used to prevent access or condition eligibility for exemption; and (7) the impact of the ability to license the use of works.

In May 1999, the Registrar of Copyrights made her recommendations to Congress in a report entitled "U.S. Copyright Office Study on Distance Education." Although the Registrar declined to propose a distance education copyright exemption at that time, ostensibly because she believed the development of new security and on-line licensing technologies may address the major concerns, she did make several recommendations for revising the copyright statute to permit limited copies of the display or performance to be transmitted to enrolled students regardless of their physical location, i.e., transmission would not be limited to classrooms. The proposed amendment would be limited to (1) non-profit educational institutions, (2) the display or performance must be in conjunction with "teacher-directed" or "mediated instruction," and (3) to the extent it is technologically sensible, access must be limited to official students and may only be retained on a server for the duration of the course. The recommendations also require institutions to develop and distribute policies that describe copyright law to students, faculty and other members of the community; include a notice that the transmission may be subject to copyright protection; and employ technology to prevent unauthorized access or distribution.

VI. Commercialization

A. Commercial Entities and Agreements

A number of commercial entities, e.g., Blackboard, eCollege (formerly Real Education), Embanet, Convene, have sprung up that provide an array of design, development, production and administrative support for on-line courses developed by faculty members. The services offered by these companies varies and some allow contracts with individual faculty, departments, schools or the entire institution.

Commercial entities can help train faculty on how to design, develop, implement and manage on-line courses, convert a tradition course to an on-line course, supplement a traditional course with on-line services, conduct an entire class on-line or provide for an entire degree on-line. There are three types of on-line commercial entities: providers of course tools, providers of groupware, and providers of administrative support. Some vendors just provide course conversion software.
Other vendors provide only a software platform from which professors can present an array of text and multimedia course material, conduct on-line discussions (real time or asynchronously) and manage testing. Other vendors convert courses to electronic format, train teachers to teach on line, maintain servers and operate help desks for students and professors.

A principal advantage of the commercial entities is the marketing of on-line courses to students not enrolled at the institution. In addition to including the courses in an on-line catalogue which is marketed to students through print, broadcast and on-line media, commercial entities provide services that include enrollment marketing consulting, international student recruitment and corporate student recruitment.

Although most commercial on-line design, development and production companies offer no warranties and representations, e.g., they do not warrant uninterrupted delivery, error-free delivery, or the accuracy, reliability or content of a course, they often require the content provider to make warranties and representations regarding their ownership or licensing of the content that is provided to them for distribution. Most require the provider to warrant that all appropriate releases and permissions have been obtained. Further, some require content providers to represent that they will not (1) post or transmit objectionable content whether it is unlawful, threatening, libelous, harassing or pornographic; (2) disrupt normal communications with those accessing the site; (3) post advertisements, promotions or solicitations; or (4) alter or delete content. Most of the commercial entities do not claim ownership of the content of the course, but claim ownership of the means of delivery.

B. Consortia

In addition to or in lieu of the use of commercial entities to market on-line courses, some institutions have entered various consortia to market their courses. For example, 14 research institutions joined forces to market their distance education programs through an on-line directory named R1.edu. The consortium will not offer degrees or academic services of its own. Credits and degrees will be offered by member institutions. The consortium essentially offers a directory of on-line courses. The universities pay nothing to participate, but provide information for the directory. Some of the participating institutions have courses cross-listed with other on-line directories.

C. Royalties/Licenses

Finally, to the extent that the institution elects to commercialize an on-line course to serve populations other than those taught by the professor, consistent with the institution’s intellectual property policy, a royalty agreement or license fee split usually is structured with the contributing faculty.

VII. Teaching Beyond State and International Borders

In addition to state regulations, institutions must address regional accreditation barriers and federal financial aid implications.

A. State Approvals

An institution considering offering distance education courses in another state or country must determine whether they need approval from accrediting organizations.
or higher education boards in the states in which they intend to transmit distance education programs. The critical issues are whether the courses will be offered for credit and whether there is a "physical presence" of the institution in the state where the course will be delivered. In some states, approval is required even if a course is not offered for credit and the converse is true in other states, i.e., approval is not required even for credit.

Unfortunately, states have adopted varying definitions of "physical presence." Generally, if students are "aggregated" at a site by the institution, states will hold that an institution has a physical presence in that state. If students receive the distance course in the privacy of their homes or offices, the states generally will hold that the institution does not have a physical presence. However, it is unclear whether or not an institution will be deemed to have a physical presence if a company makes its facilities available for employees to attend a distance education class or the students themselves arrange to gather to receive a distance education course.

Similarly, if a domestic educational institution is considering serving as the distance learning center for a foreign educational institution, not only may the foreign institution be deemed to have a "physical presence" within the state of the domestic institution, but the domestic institution may be deemed to have undergone a "substantial change" for accreditation purposes.

B. Accreditation

Although some schools offer distance education as a supplement or adjunct to traditional education, Western Governors University, Britain's Open University, National Technological University, and Canada's Athabasca use it as the only mode of teaching. Many are seeking accreditation as a validation of quality and because regional accreditation is a condition for receipt of federal funds.

In March 1999, the North Central Association of Colleges and Schools made Jones International University ("Jones") the first institution offering its courses entirely through distance education programs to achieve regional accreditation. Jones offers a bachelor's degree and a master's degree in business communications. The AAUP criticized the accreditation arguing the lack of quality was reflected in the high number of adjuncts, the short duration of the courses, the small portion of students who seek degrees, and the lack of learning resources such as libraries.

Western Governors University, which offers degrees in general education, network administration, electronic manufacturing and learning and technology, is working with the Interregional Accrediting Committee.

For-profit universities also are seeking accreditation. For example, Harcourt Learning Direct, will seek permission to grant degrees from the Massachusetts Board of Higher Education and accreditation from the New England Association of Schools and Colleges.

C. Financial Aid

With respect to financial aid implications, under Section 484(m) of Title IV of the Higher Education Act of 1965, students enrolled in courses delivered through the use of telecommunications are treated the same as traditional students (i.e., face-to-face) when financial aid is awarded. In short, a student enrolled in a telecommunication-based course is entitled to full financial aid adjusted only if the delivery method "substantially reduces the cost of attendance" to the student. The law excludes from eligibility to participate in Title IV federal financial aid programs those institutions that offer more than fifty percent of their courses through telecommunications and correspondence studies. Because the law is based on the
number of courses and not the number of enrolled students or the number of sections, the problem of large distance education classes or on-line sections is avoided. Finally, institutions can convert their correspondence courses into courses that are eligible for financial aid coverage by adding a meaningful telecommunications component.

VIII. Conclusion

Developing a distance education policy presents a variety of issues and challenges. Most institutions need to examine a host of existing policies, which will likely require revision, and the creation of new policies and procedures to limit liability.

ACE wishes to acknowledge the substantial contribution in the writing of this paper by Debra M. Parrish, Esq. and Alexander Wells Parrish, both of Pittsburgh, PA.

Media Center

New projects proposed by the media center upgrade college facilities increasing their rental value, flexibility and attractiveness to outside organizations. Currently, Auxiliary Services determines the fees charged, however Auxiliary Services often does not have the expertise to accurately set fees for venues requiring audio/visual support services. Hence, a new policy/procedure is proposed whereby the Media Center will have input in determining fees charged to outside organizations that utilize college facilities requiring audio/visual equipment and or technical support. Moreover, a maintenance fee should be built into the pricing structure that allows the Media Center to recover costs necessary to maintain college equipment and systems.
Introduction

Chapter V describes projects that enhance the computing and network infrastructure to support teaching and learning. The provision of network and internet services to all classrooms; the enhancement of academic labs; the provision of computing hardware and software to faculty; and increased bandwidth will improve overall computing services and provide the necessary underpinnings for distance education technologies.

Status Statement/Trends/Needs

Essex County College has made a commitment to move its students toward a higher level of information literacy and similarly, faculty have made a commitment to embrace the benefits of technology in instruction through digital multimedia, web-enhanced courses and distance learning. However, the college’s classrooms within which faculty teach and students learn are currently not networked. Networked classrooms would provide faculty with access to the Internet access and client/server applications that could be utilized to enhance instruction. The Classroom Networking Project is deemed first priority because of its promise to enhance faculty instruction and student learning.

The Internet/Intranet Video/Audio Streaming Project is considered second priority because it allows the delivery of on-demand programming to the classroom or to
the public. When the college Megastructure opened in 1976, a then state of the art broadcast studio and control room delivered closed-circuit programming to television monitors located in each classroom. In the early 1990’s the system was dismantled. The video streaming project will restore the college’s ability to deliver programming that can be viewed on classroom computers using network wiring installed through the Classroom Networking Project. Moreover, video can be streamed to the public via the Internet, which can be invaluable as a marketing and recruitment tool for the institution.

The **Wireless Network Access Project**, a third priority, extends some of the benefits of “hardwired” networks like the one created by the Classroom Networking Project to areas where network wiring can not be easily run.

The college networks are growing steadily to support both connectivity and bandwidth demanded by students, faculty and staff. However, network growth and increased users have generated two concerns that heretofore have not been addressed. In the Academic Computing area, there is currently no system to authenticate users and control network access. Resultantly anyone that accesses the lab can access the network. There have been instances of illegal activities such as credit card fraud and attacks of outside networks from within ECC computer labs resulting in serious government investigations and warnings from the college’s internet service provider. Hence, there is a need to authenticate users to assure only ECC students can use the labs and to facilitate the identification of individuals that would use the college networks for illegal or malicious activities contrary to college acceptable use policies. A second concern is that the Academic Computing laboratories have no system to regulate consumable costs (paper and toner). Currently, lab users currently have no limits on the amount of paper
that can be used and there are many instances where students abuse printing. There is a need to bring the cost of consumables down by instituting printing quotas. The Student Login Authentication and Accounting System Project, a fourth priority, will address the above two concerns.

A fifth priority is the Commercial Networked Copier Project. Copy machines in high use areas such as the Green or Yellow areas of the college are a challenge to maintain. The Network Copier project will allow high volume jobs to be sent electronically to the college print shop to be reproduced on a commercial grade copy machine.

The Network Security Enhancement Project, priority six, will install the latest hardware/software solutions ensuring the college’s computers and networks will be resistant to hacking and cyber-attacks.

The College Bandwidth Enhancement Project will upgrade the college’s current bandwidth and traffic handling capabilities to the Internet. Internet download speeds in most labs and offices are not much faster than dial-up. The project is necessary to support the increased bandwidth requirements that video streaming and classroom Internet access will place on the network.

The Web Banner Enhancement Project will upgrade the college’s Web Banner system so that faculty can access the full features of the system. Additional features desired are the ability to advise and register students and the ability to query the student database.

The Student Email Project will provide web access mail to every registered student. Student email will provide a mechanism for students to participate in distance
education courses and will serve as an alternate means of communication. Some college mailings may be alternately emailed resulting in postage cost savings.

The **Adjunct Faculty Email Project** will provide web access mail to every adjunct faculty member. Email will further integrate adjunct faculty into the college community.

The **Computer Replacement Plan for Academic Labs** systematically upgrades computers used in the college laboratories. The Computer **Replacement Plan for Staff** periodically upgrades computers used in faculty and staff offices. Both replacement plans currently exist, are funded on an ongoing basis and are being implemented.

Projects Summary and Priority Listing

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Classroom Networking Project</td>
<td>50,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.2</td>
<td>Internet/Intranet Video/Audio Streaming Project</td>
<td>65,000</td>
<td>I (5.1 reqd)</td>
<td>C</td>
</tr>
<tr>
<td>5.3</td>
<td>Wireless Network Access Project</td>
<td>15,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.4</td>
<td>Student Login Authentication and Accounting System Project</td>
<td>40,000</td>
<td>S</td>
<td>C/F</td>
</tr>
<tr>
<td>5.5</td>
<td>Commercial Networked Copier Project</td>
<td>75,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.6</td>
<td>Network Security Enhancement Project</td>
<td>90,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.7</td>
<td>College Bandwidth Enhancement Project</td>
<td>36,000 annually</td>
<td>I (support 5.1 &amp; 5.2)</td>
<td>C/F</td>
</tr>
<tr>
<td>5.8</td>
<td>Web Banner Enhancement Project</td>
<td>0</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>5.9</td>
<td>Computer Replacement Plan for Academic Labs</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.10</td>
<td>Student Email Project</td>
<td>30,000</td>
<td>I (next step of 5.4)</td>
<td>C</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------</td>
<td>--------</td>
<td>----------------------</td>
<td>---</td>
</tr>
<tr>
<td>5.11</td>
<td>Adjunct Faculty Email Project</td>
<td>0</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>5.12</td>
<td>Computer Replacement Plan for Staff</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
</tbody>
</table>

Staffing

A network administrator is required to maintain student accounts and email in connection with the **Student Login Authentication and Accounting System Project**. This additional person would have an annual salary of $50,000. The remaining projects can be supported by existing staff.

Professional Development

The Information Technology staff will require training to maintain the new video streaming technologies.

Media Production personnel will require training to utilize video streaming technology to deliver programming via the web.

Faculty may require an orientation session to familiarize them with utilization of streamed video programming.
Project Title: 5.1 Classroom Networking Project

PROJECT DESCRIPTION

This project’s goal is to network all classrooms in the main and West Essex campuses using category 6e or better cabling. The project’s benefits are as follows:

- Provide Internet Access within every classroom
- Provide instructor access to client/server applications that may be used to enhance instruction.
- Provide a foundation for future enhancements (such as a video streaming).

RESOURCES NEEDED

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td></td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Category 6e wire</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Racks for IDFs</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Patch Panels</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Switches</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Multimode Fiber Backbone</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Engineering Incidentals</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>$50,000</td>
</tr>
</tbody>
</table>

EVALUATION

1. Feedback from Faculty

NEXT STEPS

- Video streaming to the classroom
PROJECT TITLE: 5.2 Internet/Intranet Video/Audio Streaming Project

PROJECT DESCRIPTION

This project’s goal is to restore the college’s ability to deliver programming that can be viewed on classroom computers using network wiring and to stream video to the public via the Internet. The project’s benefits are as follows:

- Allow delivery of video programming every classroom
- Provide a marketing tool to increase visibility of the college and its offerings.
- Enhance the college website.

RESOURCES NEEDED

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td></td>
<td>$0 existing staff</td>
<td>$0</td>
</tr>
<tr>
<td>Streaming Server</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Player Software</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Video Encoder</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Engineering Incidentals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>$65,000</td>
</tr>
</tbody>
</table>

EVALUATION

1. Feedback from Faculty
2. Feedback from Media Production staff

NEXT STEPS

- Investigate marketing uses of video streaming
- Integrate video streams into college web-site
Project Title: 5.3 Wireless Network Access Project

PROJECT DESCRIPTION

This project’s goal is to extend network coverage to areas where network wiring can not be easily run. The project’s benefits are as follows:

- Provide network and Internet Access to underserved places within the college
- Provide staff mobility using notebooks with wireless capabilities.

RESOURCES NEEDED

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$0</td>
<td>existing staff</td>
<td>$0</td>
</tr>
<tr>
<td>Access Point</td>
<td>$</td>
<td></td>
<td>$</td>
</tr>
<tr>
<td>Wireless LAN Antenna</td>
<td>$</td>
<td></td>
<td>$</td>
</tr>
<tr>
<td>Wireless 802.11x card</td>
<td>$</td>
<td></td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOTAL $55,000</td>
</tr>
</tbody>
</table>

EVALUATION

1. Feedback from faculty/staff
2. Feedback from IT support staff

NEXT STEPS

- Improve wireless security and speed as enhancements become available
Project Title: 5.4 Student Login Authentication and Accounting System Project

PROJECT DESCRIPTION

This project’s goal is to provide the hardware/software necessary to authenticate users and control printer usage within the Academic Computing laboratories. The project’s benefits are as follows:

- Assure only registered/paid students access the computers, increasing the security of the Academic Computing Network
- Facilitate the identification of users that violate the academic computing use policies.
- Control paper, toner and printer maintenance costs
- Provide a foundation for future enhancements (such as a student email system).

RESOURCES NEEDED

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td></td>
<td>$0 existing staff</td>
<td></td>
</tr>
<tr>
<td>Server – controller</td>
<td>1</td>
<td>$15,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Accounting Software</td>
<td>1</td>
<td>$15,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Engineering Incidentals</td>
<td>1</td>
<td>$10,000</td>
<td>$10,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>$40,000</td>
</tr>
</tbody>
</table>

EVALUATION

1. Feedback from IT support staff
2. Feedback from student users
3. Reduction in cost of consumables

NEXT STEPS

- server upgrade every three years
- software migration as network operating systems improve
- student email
Project Title: 5.5 Commercial Networked Copier Project

PROJECT DESCRIPTION

This project’s goal is to install a commercial duty printer/copier in the print shop that will allow high volume jobs to be processed electronically. The project’s benefits are as follows:

- Lighten the burden of copy machines in high use areas such as the Green or Yellow areas of the college.
- Reduce paperwork and move toward automating print shop billing.

RESOURCES NEEDED

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Commercial Printer/Copier</td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Software</td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

TOTAL $75,000

EVALUATION

1. Feedback from faculty/staff
2. Feedback from printshop staff

NEXT STEPS

- Move toward electronic submission of print jobs and increased use of desktop publishing applications.
Project Title: 5.6 Network Security Enhancement Project

PROJECT DESCRIPTION

This project’s goal is to install the latest hardware/software solutions ensuring the college’s computers and networks will be resistant to hacking and cyber-attacks. The project’s benefits are as follows:

- Fortification of network defenses.

RESOURCES NEEDED

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel</td>
<td></td>
<td>$0 existing staff</td>
<td></td>
</tr>
<tr>
<td>Firewall Hardware</td>
<td></td>
<td>$15,000</td>
<td></td>
</tr>
<tr>
<td>Software</td>
<td></td>
<td>$15,000</td>
<td></td>
</tr>
<tr>
<td>TACAACS Server</td>
<td>5</td>
<td>$15,000</td>
<td>$75,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>$90,000</strong></td>
</tr>
</tbody>
</table>

EVALUATION

1. Feedback from IT support staff

NEXT STEPS

- Improve network security as hardware/software enhancements become available
Project Title: 5.7 College Bandwidth Enhancement Project

PROJECT DESCRIPTION

This project’s goal is to upgrade the college’s current bandwidth and traffic handling capabilities to the Internet. The project’s benefits are as follows:

- Faster download and surfing speeds.
- Support emerging distance education technologies.
- Support video streaming
- Support increasing numbers of users
- Network will be scalable for at least the next five years.

RESOURCES NEEDED

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td></td>
<td>$0 existing staff</td>
<td></td>
</tr>
<tr>
<td>Subscribe to a T3 line service</td>
<td>12</td>
<td>$3000/month</td>
<td>$36,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td></td>
<td>$36,000 annually</td>
<td></td>
</tr>
</tbody>
</table>

EVALUATION

1. Feedback from faculty/staff
2. Feedback from IT support staff

NEXT STEPS

- Move to Network Address Translation and private networks to increase the number of hosts/computers that can be supported.
- Optimize the existing local area network.
Project Title: 5.8 Web Banner Enhancement Project

PROJECT DESCRIPTION

This project’s goal is to upgrade the college’s Web Banner system so that faculty can access the full features of the system. Additional features desired are the ability to advise and register students and the ability to query the student database. The project’s benefits are as follows:

- Faculty can be more productive and accurate in registering and advising students.
- Research data for divisional reports and program evaluations will be more easily accessible.

RESOURCES NEEDED

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td>$0 existing staff</td>
<td>$0</td>
<td>$0</td>
</tr>
</tbody>
</table>

TOTAL: $0

EVALUATION

1. Feedback from faculty/staff
2. Feedback from IT support staff

Project Title: 5.9 Computer Replacement Plan for Academic Labs

See Appendix C. for the existing plan developed by the Director of Information Technology.
Project Title: 5.10 Student Email Project

PROJECT DESCRIPTION

This project’s goal is to provide email to every registered student. Students already have the ability to sign in to register for classes and pay their bills. The same database can be imported into Microsoft’s “Active Directory” to provide email to all registered students. The project’s benefits are as follows:

- Students can participate fully in distance education offerings.
- Students can communicate with faculty via email.
- The college will have an instant and alternate means to communicate with students.

RESOURCES NEEDED

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td></td>
<td>$0 existing staff</td>
<td></td>
</tr>
<tr>
<td>Email Server</td>
<td>2</td>
<td>$15,000</td>
<td>$30,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>$30,000</strong></td>
</tr>
</tbody>
</table>

EVALUATION

1. Feedback from students
2. Feedback from IT support staff

NEXT STEPS

- Expand and upgrade mail servers as necessary.
**Project Title: 5.11 Adjunct Faculty Email Project**

**PROJECT DESCRIPTION**

This project’s goal is to provide email to adjunct faculty members. The existing faculty mail server currently supports approximately 200 faculty. Adjunct Faculty may be added to the server without additional hardware costs. The project’s benefits are as follows:

- Adjunct Faculty can be further integrated into the college community.
- Adjunct Faculty can participate in distance education activities.

**RESOURCES NEEDED**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff</td>
<td></td>
<td>$0 existing staff</td>
<td>$0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

| TOTAL       |          |           | $0         |

**EVALUATION**

1. Feedback from faculty/staff
2. Feedback from IT support staff

**NEXT STEPS**

- Expand and upgrade mail servers as necessary.

**Project Title: 5.12 Computer Replacement Plan for Staff**

See Appendix D. for the existing plan developed by the Director of Information Technology.
CHAPTER VI

CLASSROOM INSTRUCTION

Introduction

The use of technology to enhance classroom instruction is effective in strengthening the academic skills of students, in helping faculty deliver course content, and in helping faculty assess student learning. This chapter proposes projects that further promote the use of technology within the classroom, improve the learning environment, help expand course/degree/certificate offerings and bring college courses and programs to the cutting edge of technology.

Status Statement/Trends/Needs

A. Status

There are currently nine multimedia classrooms (2112, 2101A, 3100M, 3100S, 4138, 4154, 4158, T103, S13) in Newark and West Essex. Each classroom is equipped with an interactive whiteboard, high-end LCD projector, laser/VCR/DVD player, microcomputer, document camera, and a special interface to accommodate professors and/or guest lecturers with laptops. Additionally, most of the classrooms have internet access.

To enhance audio quality, some of the classrooms have additional sound reinforcement equipment. With the exception of rooms 2112 and 2101A, which are manually controlled, all system components in the remaining rooms are controlled via a video touch panel.

Since their creation in early 2001, there is a growing interest among faculty to utilize the multimedia classrooms. While there is discussion to install additional “smart
rooms” with newer equipment and more advanced capabilities, specific design or room
designations have yet to be determined.

B. Trends

a. Growing emphasis in the use of multimedia hardware and software to enrich
classroom instruction.

b. Greater familiarity with and development of competency of faculty and staff in
the use of the multimedia and software.

c. Recognition of the need for sufficient resources for upgrading and enhancing the
teaching and learning environments.

d. Greater numbers of courses featuring a web component.

e. Recognition of the value in providing environments that foster collaborative work
and facilitate synergy.

f. Increased number of faculty members using presentation methodologies to
enhance the learning experience.

C. Needs

a. Equipment and facilities for preparing, using and storing multimedia material
used in classroom instruction.

b. Acquisition of appropriate multimedia hardware and software.

c. Development of a Faculty Development Plan to insure adequate training of
faculty and staff and use of these resources.

d. Enhancement of liaison arrangements between faculty and support staff in
Instructional Technology.
e. Facilitation of student access to materials used in the classroom instruction

f. Enhancing security of classroom technology assets.

g. Assigning one faculty member from each division to act as a liaison with IT to coordinate the needs of the Division with the IT area.

h. Conducting ongoing and continual assessment of the use of technology to foster effective classroom instruction.

i. Ensuring faculty access to hardware and software that is appropriate to meet the particular needs of their classroom instruction.

j. Coordination between the divisions and MPT with reference to acquisition of and placement of equipment in Smart Rooms as well as training in the use of the Smart Rooms.

**Implications/Consequences of Increasing Use of Technology in Classroom Instruction**

**Instruction**

By increasing the use of technology in classroom teaching, students, faculty and staff will become better equipped to cope with the challenges of the digital/information age. However, attention should be paid to the fact that by increasing the use of technology, there are implications and consequences that must be considered as follows:

a. Students, faculty and staff will be expected to acquire technological skills appropriate to the digital age. This will include acquiring competence using technological hardware and software to enhance classroom instruction and
content and skill absorption. Time must be spent by all, efforts expended, and expenses allocated and incurred for this effort.

b. The areas of Instructional Technology, Physical Facilities, Security and Media Production and Technology will be expected to develop and implement necessary plans, in cooperation with involved faculty and staff, to bring to reality the increased use of technology presented in the various plans set forth that may be approved.

c. The Administration will be expected to determine the degree to which it can meet the budgetary implications implicit in developing and implementing those projects deemed most desirable.

The extent to which the above entities cooperate in increasing the use of technology within classroom instruction will determine the success or failure of this effort.
### Project Summary and Priority Listing

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>“Smart Room” Multiuse Multimedia Project</td>
<td>260,000</td>
<td>S</td>
<td>C/G</td>
</tr>
<tr>
<td>6.2</td>
<td>Ceiling Mounted Projectors</td>
<td>48,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT5</td>
<td>CS Software</td>
<td>27,000</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>6.CFT3</td>
<td>ET Software</td>
<td>11,400</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>6.BED1</td>
<td>Multimedia Language Resource Center (MLRC) Project</td>
<td>115,000</td>
<td>S</td>
<td>C/G</td>
</tr>
<tr>
<td>6.CFT6</td>
<td>Microsoft IT Academy Funding</td>
<td>5,000 annually</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>6.BUS1</td>
<td>Digital Legal Classroom</td>
<td>150,000</td>
<td>S</td>
<td>C/G</td>
</tr>
<tr>
<td>6.CFT1</td>
<td>Programmable Logic Controller Project</td>
<td>24,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT2</td>
<td>Mechanical Processor Project</td>
<td>10,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT4</td>
<td>Network Lab Pack Project</td>
<td>60,000</td>
<td>S</td>
<td>C/G</td>
</tr>
<tr>
<td>6.BIO1</td>
<td>Data Carts (Computer &amp; Projector)</td>
<td>10,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.SOC1</td>
<td>Multimedia (TV, VCR, DVD) System for Massage Therapy Program</td>
<td>1,500</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT7</td>
<td>Hydraulic Test Equipment</td>
<td>10,000</td>
<td>S</td>
<td>C</td>
</tr>
</tbody>
</table>
Inter-Curricular Project Descriptions

“SMART ROOM” MULTIUSE MULTIMEDIA PROJECT: 6.1

Project Description

The project’s goal is to provide full multimedia and internet access in four additional classrooms each year for the next three years. Traditional instruction using the chalkboard and multimedia delivery will coexist in the same room. The project’s benefits are as follows:

- Current regular classroom utilization is unaffected
- Internet access both wired and wireless is readily available
- Multimedia instruction is facilitated
- Computer aided instruction is easily integrated
- Streaming video is possible
- Interactive closed circuit video casting would be available
- Broadcast classroom instruction on Internet could be implemented [Multimedia Site Live]

Each room will house 30 workstations connected in a local area network containing its own server, linked to the college’s network for internet access. The LAN would facilitate spontaneous use of instructional media and experimentation while eliminating any jeopardy to the college’s network. The servers, constructed with “swap out” removable hard drives, would be easily maintained by IT and offer maximum flexibility of instructional strategies by the faculty.
**Resources Needed**

Note: Actual Selection and Pricing of some Specific Items will be deferred to MPT, IT or Security.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multimedia Site Live (broadcast lesson over internet)</td>
<td>2</td>
<td>25,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Closed Circuit Videocasting Equipment</td>
<td>2</td>
<td>MPT</td>
<td>MPT</td>
</tr>
<tr>
<td>Wireless Network Access</td>
<td>2</td>
<td>IT</td>
<td>IT</td>
</tr>
<tr>
<td>Wired Internet Access</td>
<td>2</td>
<td>IT</td>
<td>IT</td>
</tr>
<tr>
<td>30” Workstations (Special furniture)</td>
<td>60</td>
<td>529</td>
<td>31,740</td>
</tr>
<tr>
<td>Multimedia Lecterns (Special furniture)</td>
<td>2</td>
<td>1,639 MPT</td>
<td>3,278 MPT</td>
</tr>
<tr>
<td>Multi-Board (minimum 4) Smart Board Projection System</td>
<td>2</td>
<td>MPT</td>
<td>MPT</td>
</tr>
<tr>
<td>Document Camera [High Resolution]</td>
<td>2</td>
<td>MPT</td>
<td>MPT</td>
</tr>
<tr>
<td>Audio Amplifier, Microphone &amp; Speakers</td>
<td>2</td>
<td>MPT</td>
<td>MPT</td>
</tr>
<tr>
<td>DVD,CD,MP3,VHS Recorder/players</td>
<td>2</td>
<td>MPT</td>
<td>MPT</td>
</tr>
<tr>
<td>Instructor’s Multimedia Computer Workstation w/ DVD-RW/CD-RW and Zip drives</td>
<td>2</td>
<td>IT</td>
<td>IT</td>
</tr>
<tr>
<td>Student’s Multimedia Computer Workstation w/ CD-RW and Zip drives</td>
<td>60</td>
<td>IT</td>
<td>IT</td>
</tr>
<tr>
<td>LAN Server</td>
<td>2</td>
<td>IT</td>
<td>IT</td>
</tr>
<tr>
<td>High Speed Laser Printer</td>
<td>2</td>
<td>IT</td>
<td>IT</td>
</tr>
<tr>
<td>Appropriate “slash card” room security to function with the faculty member’s parking or ID card</td>
<td>2</td>
<td>Security</td>
<td>Security</td>
</tr>
<tr>
<td>Altiris Vision [or equivalent] workstation controlling software</td>
<td>1 site license*</td>
<td>4995</td>
<td>4995</td>
</tr>
</tbody>
</table>
*A site license for Altiris Vision was purchased by the Business Division in December of 1999 and may be upgradeable.

**Evaluation**

N/A

**Next Steps**

Requests for assignment into these rooms and implementation of alternate teaching/learning strategies as well as new courses dependent on the facilities will determine the success of the venture and the necessity of expanding the number of such rooms. Select the classrooms to be upgraded.

**CEILING MOUNTED PROJECTORS: 6.2**

**Project Description**

Provide ceiling mounted video projectors in select classrooms and all computer labs will facilitate and enhance classroom presentation. The ceiling mounted equipment can be made more secure. The project proposes four installations per year over the next three years.
Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ceiling Mounted Projectors</td>
<td>4</td>
<td>$12,000</td>
<td>$48,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>$48,000</td>
</tr>
</tbody>
</table>

Evaluation

N/A

Next Steps

Upgrade/replace equipment as necessary.

DIVISIONAL APPROACHES TO USE OF TECHNOLOGY IN CLASSROOM

INSTRUCTION

ENGINEERING TECHNOLOGIES & COMPUTER SCIENCE

Status Statement/Trends/Needs

The programs of the Division of Engineering Technologies and Computer Science are housed in the Center for Technology, a 30,000 square foot facility with classrooms, laboratories, and office space, on two levels. The courses utilize cutting-edge equipment in spacious laboratories designed for training the next generation of engineers, technicians, and scientists.
The Manufacturing Engineering Technology program currently has two Programmable Logic Controllers that allow coverage of more advanced manufacturing process topics. The existing controllers are overused and in high demand, therefore two additional controllers, two mechanical processors and the associated software are being requested.

The Computer Science program is in the process of expanding its network technology offerings to include network security and advanced Internetworking topics. The CCNP lab pack will make coverage of security and contemporary internet work topics possible. The department is adding to equipment purchased through the $480,000 High Tech Workforce Grant.

In addition to the hardware being requested for the Engineering and Computer Science areas, there is a need to remain current and to forge into new areas with respect to software. The software requests reflect the division’s need to keep pace with current industry and academic standards.

**Projects Summary and Priority Listing**

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.CFT1</td>
<td>Programmable Logic Controller Project</td>
<td>24,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT2</td>
<td>Mechanical Processor Project</td>
<td>10,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>6.CFT3</td>
<td>ET Software</td>
<td>11,400</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>6.CFT4</td>
<td>Network Lab Pack Project</td>
<td>60,000</td>
<td>S</td>
<td>C/G</td>
</tr>
</tbody>
</table>
Staffing

No additional staffing is required

Professional Development

Faculty Training is required in the use of the Mechanical Processors.

Individual Project Descriptions

PROGRAMMABLE LOGIC CONTROLLER PROJECT: 6.CFT1

Project Description

The Manufacturing Engineering Technology Program is being restructured to include training in the use of programmable logic controllers. The project will allow students to learn to use industry standard equipment and obtain skills prospective employers are looking for.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLC-500 Allen Bradley PLC</td>
<td>2</td>
<td>10,000</td>
<td>20,000</td>
</tr>
<tr>
<td>RS-Logix Software</td>
<td>5</td>
<td>800</td>
<td>4,000</td>
</tr>
</tbody>
</table>

TOTAL 24,000
Evaluation

- Faculty/Student Feedback
- Advisory Board Feedback

Next Steps

- Purchase Mechanical Processor equipment

MECHANICAL PROCESSOR PROJECT: 6.CFT2

Project Description

The Manufacturing Engineering Technology Program is being restructured to include training in the use of programmable logic controllers. Mechanical processors are controlled by the PLC’s from project 6.CFT1. The project will allow students to learn to use industry standard equipment and obtain skills prospective employers are looking for.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Processor</td>
<td>2</td>
<td>5,000</td>
<td>10,000</td>
</tr>
</tbody>
</table>

TOTAL 10,000

Evaluation

- Faculty/Student Feedback
- Advisory Board Feedback

Next Steps

- Upgrade equipment as industry standards change
ET SOFTWARE PROJECT: 6.CFT3

Project Description

The following software titles are needed to support the Engineering Technologies courses and programs.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Modeling (Solid Works)</td>
<td>25 licenses</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Multimedia/Interactive Lab Software for Fluid Mechanics</td>
<td>10 lab pack</td>
<td>2,300</td>
<td>2,300</td>
</tr>
<tr>
<td>Professional Multiphysics</td>
<td>1</td>
<td>4,600</td>
<td>4,600</td>
</tr>
<tr>
<td>MathCAD</td>
<td>25 licenses</td>
<td>2,500</td>
<td>2,500</td>
</tr>
</tbody>
</table>

| TOTAL                                                 |                      |           | 11,400     |

Evaluation

- Faculty/Student Feedback
- Advisory Board Feedback

Next Steps

- Upgrade software as updates become available
NETWORK LAB PACK PROJECT: 6.CFT4

Project Description

The Network Technology Program is being enhanced to include security and advanced internetworking topics. The project will allow students to learn to use industry standard equipment and obtain skills prospective employers are looking for.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCNP Lab Pack</td>
<td>2</td>
<td>30,000</td>
<td>60,000</td>
</tr>
</tbody>
</table>

TOTAL 60,000

Evaluation

- Faculty/Student Feedback
- Advisory Board Feedback

Next Steps

- Upgrade equipment as industry standards change
CS SOFTWARE PROJECT TITLE: 6.CFT5

Project Description

The following software titles are needed to support the Computer Science courses and programs.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oracle 9i</td>
<td></td>
<td>20,000</td>
<td></td>
</tr>
<tr>
<td>Borland J Builder 9</td>
<td></td>
<td>7,000</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL 27,000

Evaluation

- Faculty/Student Feedback
- Advisory Board Feedback

Next Steps

- Upgrade software as updates become available
MICROSOFT IT ACADEMY FUNDING: 6.CFT6

Project Description

The Microsoft IT Academy Fee provides ECC’s Network Academy curricular support and allows the college to buy up to 100 copies each of any software title Microsoft produces for the price of one. The primary benefit is that very expensive network operating systems can be purchased and installed on all workstations within the networking labs. The Academy Fee will also allow the college to purchase Office 2003 software used in the Microcomputer Systems Applications Programs.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft IT Academy Fee</td>
<td>1</td>
<td>5,000</td>
<td>5,000</td>
</tr>
</tbody>
</table>

TOTAL 5,000

Evaluation

- Faculty/Student Feedback
- Advisory Board Feedback

Next Steps

N/A
HYDRAULIC TEST EQUIPMENT: 6.CFT7

Project Description

The Hydraulic equipment project will enhance the laboratory aspect of the CET221 Hydraulics and Drainage Course. The equipment requested simulates the flow of water by gravity over an obstruction or orifice. The types of measurements and the general concepts the equipment will demonstrate are important in the civil engineering field.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom Design/Custom Fabricated Hydraulic Test Equipment</td>
<td>1</td>
<td>10,000</td>
<td>10,000</td>
</tr>
</tbody>
</table>

TOTAL 10,000

Evaluation

- Faculty/Student Feedback
- Advisory Board Feedback

Next Steps

N/A
BUSINESS DIVISION

Status Statement/Trends/Needs

STATUS

The Business Division offers degrees in Accounting, Business (with options in Hospitality Management, Office Systems Technology & Management, and Financial Services), Microcomputer Systems Applications and Legal Assistant Studies. The Division also offers numerous certificate programs. Every one of these programs requires that students master a technology component. CIS courses are required in all but the LAS degree program, which requires the computer based Advanced Legal Research and Writing course. All Business Division courses that require hands on training are taught in computer laboratories located in the Mega Structure, CFT, West Essex, Ironbound and FOCUS. These laboratories are not controlled by the division but are scheduled by the Office of Academic Affairs.

Division faculty members in all curricula areas have incorporated the use of technology into their teaching. Faculty are using “Smart” classrooms for instruction and students are using the technology to make presentations to their classmates under faculty supervision. Some faculty are planning some form of on-line instruction.

The operating system currently used for most of our teaching in computer labs is Windows 2000.

TRENDS

The e-business revolution is making significant changes to businesses big and small as well as to curricula in business education. To keep our students at the leading edge of this new technology and make them fully competitive, the business curricula
must incorporate a critical discussion of the driving principles of the new electronic economy.

Additional trends that affect classroom instruction in business include an increase in technology spending, increase in access to computers, and greater teacher and student use of the Internet.

An additional concern of the Division is the effective management and security of new classroom technology.

NEEDS

- To fill the need of today’s paralegals, lawyers, criminal justice agency and law enforcement administrators for occupational training in this new age of digital law, retraining must be provided for effective functioning in this new environment. Appropriate technology will fill this need of supporting our current LAS program coupled with new Certificate Programs in Legal Technology and Criminal Justice Technology.

- Provide ceiling mounted video projectors in all Business Division labs. This will facilitate and enhance classroom presentation and increase security for the equipment.

- Upgrade operating systems (MS Windows 2003) and Application software (MS Office 2003) for preparation and display of class material which will bring students to the cutting edge.
**Projects Summary and Priority Listing**

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.BUS1</td>
<td>Digital Legal Classroom</td>
<td>$150,000</td>
<td>S</td>
<td>C/G Perkins</td>
</tr>
<tr>
<td>6.CFT6</td>
<td>Windows 2003 Operating Software*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.CFT6</td>
<td>Office 2003 Application Software*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td>Ceiling Mounted Projectors</td>
<td></td>
<td>I</td>
<td></td>
</tr>
</tbody>
</table>

* See project description for Microsoft IT Academy Funding: 6.CFT6 for availability of free licenses.

**Staffing**

N/A

**Professional Development**

Encourage faculty to acquire competency in use of above cited technology.
Individual Project Description

DIGITAL LEGAL CLASSROOM: 6.BUS1

Project Description

Classroom instruction in the Legal Assistance Program can be significantly enhanced by the development of a digital legal classroom that envisages the transformation of a classroom into a “smart” courtroom—one which will help students gain insights and familiarity with “real” working courtroom experience and ambiance.

This court design protocol can serve to join the latest technology with the demeanor and grandeur of a courtroom experience and demonstrates to students how this technology can impact the US court system.

It would include a computer, large screen video projector and sound system (White Noise) that will replicate a digital court room.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Legal Classroom Project</td>
<td></td>
<td></td>
<td>150,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>150,000</td>
</tr>
</tbody>
</table>

Evaluation

N/A

Next Steps

Select manufacturer.
CEILING MOUNTED PROJECTORS: 6.2

Project Description

Provide ceiling mounted video projectors in all Business Division labs. This will facilitate and enhance classroom presentation. By being ceiling mounted, this will add to the security of this equipment. The Business Division request for video projectors is incorporated in the Inter-Curricular project request 6.2

Resources Needed

See 6.2 Project Description.
Status Statement/Trends/Needs

The Bilingual Studies Department has submitted a grant proposal to the NJ Commission on Higher Education for the Education of Language Minority Students (February 2004). This grant requests $100,000 to establish a Multimedia Language Resource Center (MLRC). We anticipate notification of funding by June 2004.

The purpose of this grant is to upgrade computers for a total of 30 stations including desks and ergonomic chairs, and to purchase state-of-the-art CALL (computer-assisted language learning) software for the MLRC. Also, we will be able to purchase a “smart room” computer station with DVD/VCR/CD and overhead projector capabilities. The MLRC will be located in Room 1105 which has already been equipped with electricity to accommodate multiple computer stations.

The ESL program has been modified in the Fall 2004 term to take advantage of the enhancements provided by the MLRC. Students taking the first level of our ESL Academic course (ESL Writing and Communication I) will be required to take a computer literacy/keyboarding course (OCT 100) in Room 1105 concurrently. The writing and reading assignments of the ESL course will be supported by the OCT 100 course wherein students learn word processing skills and how to access information from the Internet to prepare ESL course assignments.

Students taking the second and third levels of ESL Academic courses (ESL Writing and Communication II & III) will be brought to Room 1105 one day per week for the first five weeks of the semester to Room 1105 to receive an orientation of the MLRC. After the five-week period is over, the MLRC will be an “open lab” for ESL
students. A head tutor will be assigned to provide hands-on training in word processing, Internet access, and related computer literacy skills. The orientation sessions will also introduce computer-assisted language learning (CALL) software available in the MLRC.

**Projects Summary and Priority Listing**

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.BED1</td>
<td>Multimedia Language Resource Center (MLRC) Project</td>
<td>$115,000</td>
<td>I</td>
<td>C/G</td>
</tr>
</tbody>
</table>

**Staffing**

The MLRC will be staffed by one Head Tutor and two Tutors. Salaries for tutoring staff will be paid in part by the MLRC Grant and by the College Tutoring Center. The OCT 100 course will be taught by an instructor with training in computer literacy and the needs of ESL students and CALL software.

**Professional Development**

All the full time and part-time ESL faculty and tutors will participate in a series of four workshops designed to complement the integration of the MLRC into the ESL curriculum and for the professional development of the instructional staff. The workshops will be coordinated and conducted by full time members of ESL faculty.

The first is “ESL Software Training Workshop” which is designed to introduce the CALL instructional software available to ESL students. This workshop will provide
hands-on training for instructors and tutors with particular emphasis on the language skills development associated with each software application.

The second is “ESL Writing Rubric Workshop” which is designed to discuss the ESL Writing Rubric and how this instrument is used to score student writing in the ESL program. The placement and exit criteria in each level of the ESL Academic courses will be discussed. Participants in the workshop will practice scoring ESL writing samples and using the ESL Writing Rubric as an analytical tool to provide feedback to students’ writing pieces vis-à-vis their progress in academic writing. Participants will also practice scoring ESL papers in a “norming” session, i.e., developing uniformity among readers to become consistent in scoring papers.

The third is “ESL Writing Portfolio Workshop” which is designed to demonstrate to participants how to provide instruction to students on the development and maintenance of the course writing portfolio. Participants will learn how to use MS Word to properly format drafts of course writing assignments, document editing and revising, file management, and printing. Participants will learn how to show students to organize and present the course portfolio as required in each ESL course.

The fourth is “MLRC Project Assessment Workshop” which is designed to discuss all the elements of the project assessment process. At this workshop, participants will discuss the forms used to evaluate the professional development workshops. Also the mechanism which will be in place to get feedback from faculty and students regarding the utility of the MLRC, the ESL writing assignments, and the progress of students at each level of the ESL Academic courses.
Individual Project Descriptions

MULTIMEDIA LANGUAGE RESOURCE CENTER PROJECT: 6.BED1

Project Description

The Multimedia Language Resource Center (MLRC) project which is being funded starting June 2004 envisages that ESL students will be provided computer literacy and keyboarding skills to meet the challengers of current professional office environments. In addition, students will be provided support by way of Computer-Assisted Language Learning (CALL) software and tutorial assistance to meet the challenges of the ESL Academic courses. Lastly, the Bilingual Studies Department will establish a mechanism to keep records of students’ in-class writing samples (stored by use of the high speed scanner) to measure individual student progress through the ESL sequence.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL software to enhance English language skills. ESL 095</td>
<td></td>
<td></td>
<td>$15,000</td>
</tr>
<tr>
<td>CALL software to enhance English language skills. ESL 103/104 AND 105/106</td>
<td></td>
<td></td>
<td>$14,000</td>
</tr>
<tr>
<td>30 computers stations (@ $1,000 each)</td>
<td>30</td>
<td>$1,000</td>
<td>$30,000</td>
</tr>
<tr>
<td>30 desks and chairs (@ $500.00 each)</td>
<td>30</td>
<td>$ 500</td>
<td>$15,000</td>
</tr>
<tr>
<td>Interactive Whiteboard with peripherals</td>
<td></td>
<td></td>
<td>$25,000</td>
</tr>
<tr>
<td>Laser Network printer</td>
<td></td>
<td></td>
<td>$ 1,300</td>
</tr>
<tr>
<td>High speed scanner</td>
<td></td>
<td></td>
<td>$ 600</td>
</tr>
<tr>
<td>Hire three tutors for two semesters</td>
<td></td>
<td></td>
<td>$14,100</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>$115,000</td>
</tr>
</tbody>
</table>

Evaluation

Conduct formative and summative evaluation of project.

Next Steps

Establish timelines for tasks.
MATHEMATICS & PHYSICS

Introduction

The Math and Physics Division has a unique mix of strongly traditional and highly progressive staff. This highly motivated, diverse and unified teaching faculty serves our student population well. The use of new technology must be carefully woven into the fabric of the division, which motivates this proposal.

Status Statement/Trends/Needs

The MAP department does not have a multimedia classroom or computer lab dedicated to the specific and diverse needs of the department. This proposal works toward modifying this condition.

Projects Summary and Priority Listing

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>“Smart Room” Math/Physics Multiuse Multimedia Classrooms</td>
<td></td>
<td>I</td>
<td>Grant $ (G)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Operating $ (O)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Capital $ (C)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Student Fee $ (F)</td>
</tr>
</tbody>
</table>

Staffing

N/A

Professional Development

Instruction of faculty in use of appropriate technology.

Individual Project Descriptions

See 6.1 Project Description.
SOCIAL SCIENCE

Status Statement/Trends/Needs

A Multimedia (TV, VCR, and DVD) system should be installed in the Gymnasium Room 407 dedicated to the Massage Therapy Program to facilitate class instruction.

Projects Summary and Priority Listing

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source:</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.SOC1</td>
<td>Multimedia (TV, VCR, DVD) system (Massage Therapy Program)</td>
<td>$15,000</td>
<td>S</td>
<td>C</td>
</tr>
</tbody>
</table>

Staffing

N/A

Professional Development

N/A
Individual Project Description

MULTIMEDIA SYSTEM: 6.SOC1

Project Description

Two Multimedia System (TV, VCR and DVD) in the Gymnasium Room 407 dedicated to the Massage Therapy Program are needed to facilitate classroom instruction.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multimedia System Project</td>
<td>2</td>
<td>$750</td>
<td>$1,500</td>
</tr>
</tbody>
</table>

**TOTAL**

|               |          |           | $1,500     |

Evaluation

Faculty/Student feedback

Next Steps
HUMANITIES DIVISION

Status Statement/Trends/Needs

The Department does not have any current needs that are relevant in this section for technological enhancement as dealt with in this chapter; but it is considering use of “Smart Rooms.”

Projects Summary and Priority Listing

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>See 6.1</td>
<td>“Smart Room” Multiuse Multimedia Project*</td>
<td>I</td>
<td>C/G</td>
<td></td>
</tr>
</tbody>
</table>

Staffing

N/A

Professional Development

Faculty training in use of “smart-room” technology.

Individual Project Description

* See “Smart Room” Multiuse Multimedia Project: 6.1
BIOLOGY & CHEMISTRY

Status Statement/Trends/Needs

The Division of Biology and Chemistry desperately needs another Smart Room. It lost its Smart classroom to Nursing over one year ago, and now all it has is 3100M which is a lab, and therefore not useful for a large crowd or a long lecture. It could also use additional data carts (computer, monitor, and projector) to bring into the non-Smart classrooms. The ones that it has are in continuous use.

Projects Summary and Priority Listing

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>See 6.1</td>
<td>“Smart Room” Multiuse Multimedia Project.*</td>
<td></td>
<td>I</td>
<td>C/G</td>
</tr>
<tr>
<td>6.BIO1</td>
<td>Data Carts (computer and projector)</td>
<td>2</td>
<td>S</td>
<td>C</td>
</tr>
</tbody>
</table>

* See “Smart Room” Multiuse Multimedia Project: 6.1

Staffing

N/A

Professional Development

Encourage faculty to acquire expertise in project technology.
Individual Project Description

DATA CARTS: 6.BIO1

Project Description

The data carts will allow a faculty member to make a presentation developed on a computer using a software package such as PowerPoint, demonstrate software, and play all or part of a CD or DVD to facilitate classroom instruction. The carts can also be used for student class presentations.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Cart (Computer and Projector)</td>
<td>2</td>
<td>$5,000</td>
<td>10,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>$10,000</td>
</tr>
</tbody>
</table>

Evaluation

N/A

Next Steps

Select manufacturer.
NURSING & ALLIED HEALTH

Status Statement/Trends/Needs

The Department does not have any current needs that are relevant in this section for technological enhancement as dealt with in this chapter; but it is considering use of “Smart Rooms.”

Projects Summary and Priority Listing

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>See 6.1</td>
<td>“Smart Room” Multiuse Multimedia Project *</td>
<td></td>
<td>I</td>
<td>C/G</td>
</tr>
</tbody>
</table>

Staffing

N/A

Professional Development

Instruction of faculty in use of appropriate technology.

Individual Project Description

* See “Smart Room” Multiuse Multimedia Project: 6.1
**SPECIAL PROGRAMS**

**Status Statement/Trends/Needs**

The Department does not have any current needs that are relevant in this section for technological enhancement as dealt with in this chapter; but it is considering use of “Smart Rooms.”

**Projects Summary and Priority Listing**

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>See 6.1</td>
<td>“Smart Room” Multiuse Multimedia Project *</td>
<td></td>
<td>I</td>
<td>C/G</td>
</tr>
</tbody>
</table>

**Staffing**

N/A

**Professional Development**

Instruction of faculty in use of appropriate technology.

**Individual Project Description**

* See “Smart Room” Multiuse Multimedia Project: 6.1
CHAPTER VII
LIBRARIES

Introduction

Chapter VII describes the projects which will maintain as well as enhance and expand the automated services of all the libraries of the College. This includes the existing acquisitions, cataloging, circulation, and serials modules as well as internal and remote access to the many online databases.

Status Statement/Trends/Needs

Essex County College maintains a library at each of its three campuses. The Martin Luther King, Jr. Library, which is located on the third and fourth levels of the megastructure in downtown Newark, is the main College library. Its online cataloging service began in 1976 when the College moved to its new campus in 1976. In 1996 its automated services were expanded and modules for acquisitions, circulation, and serials were added and the new service integrated the existing cataloging service. Physical renovations were needed to reflect the changing delivery of information and these were completed in 2000. These improvements included the installation of five group study rooms, a computer center which is dedicated to Internet access and is located in the Periodicals Department, a bibliographic instruction classroom which has 24 computer stations and an instructor’s station, carrels and counters that are wired for computer access, the installation of wireless access to the Internet to those who have the

ACAC Instructional Technology Plan 82
appropriate card in their laptop computers, and redesigned lighting which includes windows for natural light and windows to the hall of the megastructure so that those passing can see the activities within the King Library. Banks for the OPAC (online public access catalog) were installed on both levels of the library and book stacks were relocated to comply with ADA regulations.

The West Essex Branch Campus Library moved into a new facility which is located in the new wing of the campus in 1998. It offers full access to the collections of all the College libraries and all services which are available at the main library are also given there.

The Police Academy Library is a reference collection exclusively. The facility has just completed a major renovation and it reopened in February, 2004. It offers remote access and materials can be circulated between the three libraries, but do not circulate to the general public.

The instructional equipment of the three libraries includes a combined monograph collection of more than 109,000 circulating titles and 18,000 reference titles; more than 4,700 non-print titles; and more than 700 periodicals subscriptions. The Libraries accept and send interlibrary loans – a service which significantly increases the instructional materials. Additionally, the Library is a member of ReBL. The Reciprocal Borrowing Libraries – a consortium of 25 Essex County public, academic, and special libraries; CHEN, the Council for Higher Education in Newark, a Newark-based consortium that includes Rutgers-Newark, the New Jersey Institute of Technology, and the University of Medicine and Dentistry of New Jersey.
The first priority is the **Bibliographic Instruction/Information Literacy Project** because it affects the entire College community as it enables students to become aware of the many information sources that exist and to use them effectively.

The **Expansion of Access to the Internet Project** is the second priority. This includes both remote and internal access for all library patrons. The College would provide the backbone and the patron would be able to use his/her personal equipment in addition to the College-provided hardware.

The **Online Database Project** is the third priority. This includes not only the addition of more databases to the library’s collection, but full remote access to these databases.

The **Pay per Page Duplication Project** would not only generate revenue for the maintenance and development of the collection as well as the improvement to the appropriate hardware, but it will also contribute to a reduction in vandalism to the collection.

The **ECCOPAC Upgrade Project** enhances the library automation system by activating additional OPAC modules and installing AirPAC, which extends online searching to patrons using mobile phones and PDAs with wireless capabilities.

The ongoing activity of the libraries is the **Maintenance of the Standards** as prescribed by the Association of College and Research Libraries. These standards apply to two-year and three-year academic institutions awarding associate degrees or certificates.
### Projects Summary and Priority Listing

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.1</td>
<td>Bibliographic Instruction/Information Literacy</td>
<td>$5,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>7.2</td>
<td>Expansion of Access to the Internet</td>
<td>$1,500</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>7.3</td>
<td>Online Database</td>
<td>TBD</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>7.4</td>
<td>Pay per Page Duplication</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>7.5</td>
<td>ECCOPAC Upgrade Project</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>7.6</td>
<td>Maintenance of the Standards</td>
<td>$425,000</td>
<td>S</td>
<td>O</td>
</tr>
</tbody>
</table>

### Staffing

The library needs at least eight additional professional librarians to meet the minimum ACRL Standards for an academic institution with a student population the size of ECC. A network administrator is needed to maintain the automation system which serves the three facilities. The network administrator need not be a librarian but this would be extremely beneficial.

The existing staff is too small to complete the described projects and maintain minimum services as required by the students.
Professional Development

The librarians and technical assistants will require continuous training to maintain their currency in the materials that are available and the skills to employ them. This ongoing education can be maintained via attending conferences, seminars, and networking activities with their colleagues. Additional training will be required to implement the ECCOPAC Upgrade modules and AirPAC.

Individual Project Descriptions

Project Title: 7.1 Bibliographic Instruction/Information Literacy

Project Description

The purpose of this project is to properly equip the bibliographic instruction classroom at the King Library and to provide a similar facility at each of the other libraries in order to demonstrate the use of the online catalog and its peripherals as well as demonstrate the searching of the Internet and online databases. The expected outcomes are:

- Students will learn to use the online catalog
- Students will evaluate and use their critical thinking skills in a structured situation and under the supervision of their classroom teacher and a librarian

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computers (Can use “old” computers from re-deployment)</td>
<td>30</td>
<td>0</td>
<td>$0</td>
</tr>
<tr>
<td>Internet Access for all computers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCD projector for instructor’s station</td>
<td>1</td>
<td>$5,000</td>
<td>$5,000</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>$5,000</strong></td>
</tr>
</tbody>
</table>


**Evaluation**

- Feedback from faculty
- Student progress in academic work as demonstrated on transcript

**Next Steps**

Online distance learning activities which students complete as a follow-up to the structured bibliographic classroom

---

**Project Title: 7.2 Expansion of Access to the Internet Project**

**Project Description**

The objective of this project is to provide wireless access to the Internet to patrons within all three libraries. The patron would use his/her own personal equipment in addition to the College-provided hardware.

**Resources Needed**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate antennae in each library</td>
<td>Quantity for 3 libraries</td>
<td>500</td>
<td>1,500</td>
</tr>
<tr>
<td>Personnel to maintain connection</td>
<td>? [would this be IT staff]</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

**Evaluation**

Conduct a formal survey at the end of the first semester of full service to determine the extent of the use and the perception by the patrons.

**Next Steps**

Determine the need for the library to add a service which loans laptop computers to patrons.
Project Title: 7.3 Online Database Project

Project Description

Additional online databases will be purchased by the library and students will be able to access the databases not only from the College library and computer installations, but also from their homes (remote access).

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify databases which allow such conditions in their site licenses.</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Memberships in cooperatives which provide this service</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Purchase site licenses</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

Evaluation

Tally monthly statistics on the use of the databases – internally and remotely to determine their continuation, addition, and/or replacement.

Next Steps

Keep up to date regarding the availability of resources.
Project Title: 7.4 Pay per Page Duplication Project

Project Description

Vend towers would be installed on the public access computers, the copier machines and the microfilm reader/printers. Patrons would pay for duplications services by the number of pages that are ordered.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriate peripheral (programmable vend tower) to</td>
<td>One tower per machine</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>regulate the copies as the payment is made</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Copy cards which can have funds added to them and which</td>
<td>1/3 of the total student population number</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>can be used in the duplication machines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>TBD</td>
</tr>
</tbody>
</table>

Evaluation

Compare the income to the initial cost of the hardware and the expected profit.

Identify whether or not there is a reduction in vandalism to the materials.

Next Steps

Consider implementing the program throughout the College.
Project Title: 7.5 ECCOPAC Upgrade Project

Project Description

The College online public access catalog (opac) is a totally web-based, online operation that has replaced the card catalog of the library. Technical and performed activities by the librarians as well as search and communication activities of patrons are completed via the web. The project activates additional OPAC modules and installs AirPAC, which extends online searching to patrons using mobile phones or PDAs with wireless capabilities.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation of AirPAC wireless module</td>
<td>1</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Activate INN-Keeper Module</td>
<td>1</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Activate E-Checkin Module</td>
<td>1</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Activate Meta Source Module</td>
<td>1</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Activate XML-Server Module</td>
<td>1</td>
<td>TBD</td>
<td>TBD</td>
</tr>
</tbody>
</table>

| TOTAL                                 |          |           | TBD        |

Evaluation

Next Steps
Project Title: 7.6 Maintenance of the Standards

Project Description

Maintain the Standards as prescribed by the Association of College and University Libraries.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personnel – professional librarians</td>
<td>8</td>
<td>$37,000</td>
<td>$296,000</td>
</tr>
<tr>
<td>Personnel – clerical</td>
<td>6</td>
<td>$21,500</td>
<td>$129,000</td>
</tr>
</tbody>
</table>

TOTAL

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>$425,000</td>
</tr>
</tbody>
</table>

Evaluation

As per Faculty, Professional or Secretarial union contracts

Next Steps

N/A
CHAPTER VIII

DISTANCE EDUCATION

Introduction

Chapter VIII provides technical recommendations that will enable Essex County College to move forward in providing: web enhanced courses, ITV, WebCT, and telecourses. Technical support is also a necessary component of these technical recommendations that should enable faculty and students to use these technologies to their educational advantage.

Status Statement/Trends/Needs

Presently Essex County College is embarking on initiative to facilitate faculty and students in distance learning. Informally, some faculty are using available web resources to enhance the learning experience, but much work needs to be done in this area to make distance education modalities a working reality for all interested faculty and students. For example, the faculty web server andromeda.essex.edu is being used by very few faculty members to enhance their present course offerings. However, faculty have expressed interest in using web-facilitated courses, but few have the technical expertise to make this happen. Initially some training was provided by the Faculty Development Committee, but this training is not currently offered. Furthermore, many technical issues remain unresolved in the delivery of ITV, WebCT and Cable courses. A working technical environment is an essential prerequisite for any distance education initiative, regardless of its mode of delivery.
The Media Production Center oversees the operation of two fully-equipped interactive classrooms at West Essex (Room S009) and Newark (Room 2132). Two primary modalities connect the rooms to the outside world: the Interactive Distance Learning System (IDLS) or the Integrated Services Digital Network (ISDN). The Verizon IDLS is a full-motion, fiber-optic based proprietary network currently serving educational institutions in North and Central New Jersey. This system enables Essex County College to connect with area high schools and colleges with real-time, interactive video that emulates the quality of cable television. Additionally, both facilities can also connect to the outside world via telephone lines (ISDN) and compressed video equipment (CODEC). This system digitizes and compresses the video and audio signal so they can be transmitted over telephone lines to any similarly equipped location in the world. The equipment is outdated and the IDLS modality will have to be replaced as other institutions move toward ATM and video-streaming technologies.

The college currently provides educational programming to the Essex County community via cable channel 22, however, distance education telecourses originating from ECC are not offered.

Some bursar, registrar and library services are available on-line, however tutoring, counseling and student-life services are not. The college does not currently provide technical support to faculty or students.

The college needs to provide a distance education infrastructure and faculty and student support services in order to move forward with distance learning initiatives.
## Projects Summary and Priority Listing

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.1</td>
<td>Web CT Central Server Project</td>
<td>60,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>8.2</td>
<td>Technical Support Staff Project</td>
<td>180,000 annually</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>8.3</td>
<td>Online College Services Project</td>
<td>20,000 c 110,000 o 130,000</td>
<td>S</td>
<td>C/O</td>
</tr>
<tr>
<td>8.4</td>
<td>Telecourse Project</td>
<td>0</td>
<td>I (Media Center Projects 9.2, 9.3, 9.4, 9.7)</td>
<td></td>
</tr>
</tbody>
</table>

## Staffing

A dedicated staff of support professionals will be necessary. This largely depends on what is to be delivered. For example, we currently offer ITV courses and those faculty doing this need support staff who are able address issues as they arise. WebCT however, will need separate support staff that will assist faculty in the preparation and delivery of web based courses and similarly for telecourses. Also necessary will be support staff that can address student issues as they arise. Everyone involved should have
access to reasonable support.

**Professional Development**

Faculty should be encouraged to use these technologies and be provided with training as needed. Support staff can act as facilitators of individual faculty members in addition to their duties as trouble-shooters. Support needs will vary, but once a faculty member becomes familiar with a technology the support needs will decrease for that faculty member as long as the delivery system is robust and well maintained. As demand for distance courses increases, we will need to periodically review our delivery methods. Certainly we need to monitor this carefully and to initially proceed cautiously forward.

Faculty will need training similar to training received for ITV instructors so that telecourses can be produced.

**Individual Project Descriptions**

**WEB-CT CENTRAL SERVER PROJECT: 8.1**

**Project Description**

It is essential that Essex County College provide adequate server capacity to support the demand for distance education. Although demand may not be adequately known in advance, we should plan on growth.

**Resources Needed**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dell Server</td>
<td>5</td>
<td>5,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Remote Services Hardware</td>
<td></td>
<td></td>
<td>25,000</td>
</tr>
<tr>
<td>Web-CT Software</td>
<td></td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>60,000</strong></td>
</tr>
</tbody>
</table>
Evaluation
1. Feedback from Faculty
2. Feedback from Students

Next Steps

- Scale to accommodate increasing numbers of courses, faculty and students

TECHNICAL SUPPORT STAFF PROJECT: 8.2

Project Description

Faculty should have access to technical staff that can address issues related to the delivery of distance education. This will vary from simple web based development, all the way to offering media rich learning environments.

Students should also have access to technical support that can address issues that students may experience. This will become increasingly important because of the non-traditional way in which these technologies are delivered. Much depends on the technical skills of those involved and one should never underestimate the demand that students will place upon technical support. It is unreasonable to expect that students will "just figure it out."

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director Distance Education</td>
<td>1</td>
<td>60,000</td>
<td>60,000 annually</td>
</tr>
<tr>
<td>Web-CT Student/Faculty Support Person (24 hour coverage)</td>
<td>3</td>
<td>30,000</td>
<td>90,000 annually</td>
</tr>
<tr>
<td>Faculty Support Person</td>
<td>1</td>
<td>30,000</td>
<td>30,000 annually</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>$180,000</strong></td>
</tr>
</tbody>
</table>

Evaluation

1. Feedback from Faculty
2. Feedback from Students

Next Steps
ONLINE COLLEGE SERVICES PROJECT: 8.3

Project Description

The project proposes to extend the following college services to distance education students:

**Counseling and advisement:** Online students should be provided access to staff that will help them in the advisement and registration process. It is also imperative that non-academic issues be addressed with some form of online counseling.

**On-line library:** electronic books, journals and periodicals and access to library materials – not normally necessary in traditional courses – should be resolved so that off-campus students will not be at a disadvantage. In addition, electronic library resources available to on-campus students should be available to off-campus students via the Internet.

**On-line tutoring:** A learning support staff capable of servicing the learning needs online students via the Internet should be provided.

**On-line student center:** A central place (web page) where online students will have access to extra-curricular resources that are normally made available to on-campus students should be created. The online student center should include an access portal to student government.

**Existing web registration/bursar:** A method by which students can manage the finances of their education. This should include all resources normally available for on-campus students, such as: financial aid, bursar and registrar.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Counseling Server</td>
<td>1</td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Online Student Center Server</td>
<td>1</td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td>Counselor</td>
<td>1</td>
<td>60,000</td>
<td>60,000 annually</td>
</tr>
<tr>
<td>Tutoring 24-7 Service</td>
<td></td>
<td></td>
<td>25,000 annually</td>
</tr>
<tr>
<td>Books 24-7 Service</td>
<td></td>
<td></td>
<td>25,000 annually</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td>20,000 capital</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>110,000 operating</td>
</tr>
</tbody>
</table>
Evaluation

1. Feedback from Students

TELE COURSE PROJECT: 8.4

Project Description

The Media Center projects that deal with the renovation of 2131/2132 lecture halls, video conferencing, and Cable channel 22 automation would provide the infrastructure for the college to move forward in originating telecourses. In addition, MPT has a fully equipped production studio that can be utilized to produce telecourses. Select courses can be broadcast to county residents who can either tune-in or videotape them.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Media Center Chapter IX Projects</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.2 Renovation 2131/2132</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.3 Video Conferencing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.4 Cable 22 Automation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.7 Smarter than Smart Rooms</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

Evaluation

1. Feedback from Faculty
2. Feedback from Students
CHAPTER IX

MEDIA CENTER

Introduction

The Media Production and Technology Center is a one-stop, media resource facility created to meet the instructional needs of the college community. In addition to the maintenance of the interactive and multimedia classrooms, the center maintains an extensive inventory of audio/visual equipment and offers a full range of professional video and audio services, including satellite down linking and non-linear video editing. Additionally, the center is the home of TV22, the 24-hour, educational access channel for Cablevision of Newark, which reaches approximately 50,000 households in Newark and parts of South Orange.

Status Statement/Trends/Needs

The utilization of audio/visual equipment for instruction has increased dramatically over the last few years. As a result, equipment inventory has also grown to keep pace with the high demands. Presently, available equipment ranges from television/VCR/DVD combination units, digital video camcorders and still cameras to public address systems, LCD projectors and document cameras. On the average, center personnel fulfill approximately 400 requests a month for a variety of equipment. With the continuous increase of faculty utilizing presentation equipment, there continues to be a need to increase equipment inventory. Additionally, as CD-ROM/DVD formats become more prevalent, it is imperative the center is able to work with these formats. Software and hardware are needed to create CD-ROMs and author to DVD. We presently duplicate...
media on audio/video (VHS) tape; however the ability duplicate CD-ROMs/DVDs is also needed. Thus, the **Enhancement of Video Services Project** would be deemed first priority because of its potential to enhance faculty instruction and overall student learning.

The **Renovation of Lecture Halls 2131/2132 Project** is the second priority as it would make the lecture halls more conducive to multimedia presentations for large audiences. Presently, 2132 is the interactive television (ITV) classroom. However, there has been little ITV activity and as a result 2132 is now being used for large classes. Unfortunately, the room’s present configuration and equipment limitations have left the room with little to no functionality outside of ITV activities. The renovation of 2132 would be contingent on the re-location of the interactive classroom.

Lecture Hall 2131 is in a similar situation. When the room was first created in the 1970’s, its equipment and design were considered state-of-the-art. The room contained high-end slide and 16mm projectors, sound reinforcement equipment and a large screen capable of displaying multiple images. However, the equipment no longer works and has changed dramatically since that time. Both lecture halls need to be re-designed to include high-end projection systems that are able to handle VCR/DVD/Computer inputs along with internet access. The rooms should also contain an interactive component that would enable presenters to interact with their presentations. Additionally, both lecture halls should be interconnected with each other and the Mary Burch Theatre. All rooms should also be interconnected to MPT Master Control. While the lecture halls would primarily be used for academic purposes, their design and multimedia capability would also make the rooms attractive meeting options for educational and corporate entities.
The educational access channel, TV22, affords the college tremendous opportunities to promote itself, events and programs of the college to the outside community. To increase programming on the channel, the Center has partnered with Newark Public Schools (NPS) to provide educational programming relevant to our constituency. While this partnership has increased programming, there is still more that can be done. The Center is in dire need of a new Automation System. We presently have a tape-driven playback system that is dated and limited in its capabilities. Playback from the present analog system is limited to ¾ inch and ½ videotapes which lack the quality we ultimately want to put forth. The new, tapeless, server-driven automation system would eliminate video decks which would ultimately enhance picture quality and allow for more programming flexibility.

The center currently transmits its signal to cablevision via microwave. The equipment, purchased in the late 1970s, has been replaced once. Since its replacement in 1996, there have been a myriad of transmission problems. As the channel becomes a more dominant force in educational programming, broadcast quality is important. The move to Fiber Optic Technology would provide a more reliable means of transmission. Fiber optic transmission would also dramatically improve the picture quality and deliver near CD quality audio.

As previously stated in Chapter 6, the college has 9 multimedia classrooms throughout the mega structure and West Essex. However, the one place that should contain a multimedia classroom for training and presentation purposes is the Media Center. The Smarter than Smart Classroom project would convert the traditional
classroom in the MPT center into an intimate training facility for faculty and a multimedia presentation classroom for the Communications program. In addition to interactive capability, the classroom would have internet access and video conferencing capabilities. Additionally, the classroom would also be wired to receive satellite and cable television for instructional purposes.

The Center currently has satellite down linking capability (both Ku and C-Band) for video/teleconferences at both Newark and West Essex campuses. Through satellite down linking, ECC is able to bring unique educational programs and/or experiences to the classroom that would otherwise not be possible. Additionally, the technology also provides a wide range of professional development opportunities for faculty and staff from regional, national and international sources.

The Center downlinks approximately 20 programs annually. While a majority of requests for down linking are internal, the Center has down linked for outside, not-for-profit organizations as well as educational institutions. The requests are increasing and to better meet the requests, the Center would like to install an additional Satellite Receiving Station. This second dish would enable the center to down link two programs simultaneously. This would not only be beneficial to the college community but could possibly bring additional revenue into the college via rental opportunities.

The Federal Communication Commission (FCC), which is the governing agency for the communications industry, has mandated that all television stations and cable providers convert from the present NTSC (National Television Society Committee) 4:3 format to the new High Definition (HDTV) 16:9 standard by 2006. HDTV is the way of
the future and TV22 cannot be left behind. It is imperative that funds be set aside for the transitioning to HDTV (equipment/electronics) for broadcast and instructional purposes.

In recent years the college gymnasium has become a multipurpose facility hosting such events as graduations, theatrical productions, conferences and concerts. The gymnasium sound system at present is somewhat adequate for sporting events, however there is a tremendous need to acoustically treat the gym to solve many of the sound reinforcement problems that occur when the gym is used for non-sporting events.

**Projects Summary and Priority Listing**

<table>
<thead>
<tr>
<th>Priority #</th>
<th>Project Title</th>
<th>Project Cost $</th>
<th>Stand Alone (S) or Integrated Project (I)</th>
<th>Recommended Funding Source: Grant $ (G) Operating $ (O) Capital $ (C) Student Fee $ (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.1</td>
<td>Video Services Enhancement</td>
<td>38,300</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>9.2</td>
<td>Renovation of 2132/2131</td>
<td>300,000</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>9.3</td>
<td>Video Conferencing Capability</td>
<td>15,500</td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>9.4</td>
<td>Automation System for TV22</td>
<td>30,000</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>9.5</td>
<td>Acquisition of Pre-produced Programs for TV22</td>
<td>15,000 annually</td>
<td>S</td>
<td>O</td>
</tr>
<tr>
<td>9.6</td>
<td>Fiber Optic link to Cablevision</td>
<td>TBD</td>
<td>S</td>
<td>C</td>
</tr>
<tr>
<td>9.7</td>
<td>“Smarter than Smart” Classroom ~ Renovation of MPT Screening Room</td>
<td>2,800</td>
<td>I (see 6.1)</td>
<td>G</td>
</tr>
<tr>
<td>9.8</td>
<td>Additional Satellite Receiving Station</td>
<td>30,000</td>
<td>S</td>
<td>C</td>
</tr>
</tbody>
</table>
Staffing
As the center expands services offered, there will be a need to hire additional qualified staff. In the programming for TV22 project, there is a need for a Director/Technical Director for live programs. In addition, individuals that are skilled at field production would also help in producing more original programs. Additional part-time staff will also be needed in the Video Enhancement Services project. As the center services and requests increase, there will be increased need for individuals to help provide the services.

Professional Development

Presently, the MPT Center staff constantly seeks out training opportunities as they relate to new and advanced audio/video technology. While many of the industry workshops are free; many, more in-depth events are not. It is in these sessions that participants receive advanced training and/or certifications that are so vital to center operations. Funds for ongoing training and professional development are needed and should not be compromised if center personnel are to stay abreast of the industry trends.
Individual Project Descriptions

Project Title: 9.1 Video Services Enhancement

Project Description
This project’s goal is to increase equipment inventory and audio/video services offered to faculty and staff as a way of enhancing overall instruction. The project’s benefits are as follows:

- Provide state-of-the art audio/video equipment to faculty and staff
- Provide a variety of production services to faculty and staff

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCD Projectors</td>
<td>3</td>
<td>5,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Computers</td>
<td>3</td>
<td>2,000</td>
<td>6,000</td>
</tr>
<tr>
<td>Graphic Cameras</td>
<td>3</td>
<td>3,000</td>
<td>9,000</td>
</tr>
<tr>
<td>Digital Still Cameras</td>
<td>3</td>
<td>800</td>
<td>2,400</td>
</tr>
<tr>
<td>Digital Video Cameras</td>
<td>3</td>
<td>1,000</td>
<td>3,000</td>
</tr>
<tr>
<td>CD-ROM/DVD Duplicators</td>
<td>1</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Equipment Carts</td>
<td>3</td>
<td>300</td>
<td>900</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>38,300</strong></td>
</tr>
</tbody>
</table>

Evaluation
1. Feedback for faculty and staff
2. Usage Statistics

Next Steps
Project Title: 9.2 Renovation of 2131/2132

Project Description
This project’s goal is to enhance multimedia capability in the Lecture Hall 2131/2132.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projection System</td>
<td>1</td>
<td>50,000</td>
<td>50,000</td>
</tr>
<tr>
<td>Sound Reinforcement System</td>
<td>1</td>
<td>20,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Customized Podium</td>
<td>1</td>
<td>10,000</td>
<td>10,000</td>
</tr>
<tr>
<td>A/V Recording System</td>
<td>1</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Aesthetic Modifications</td>
<td>1</td>
<td>12,000</td>
<td>12,000</td>
</tr>
<tr>
<td>Consultant</td>
<td>1</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td>Peripherals</td>
<td>1</td>
<td>20,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Labor</td>
<td>1</td>
<td>8,000</td>
<td>8,000</td>
</tr>
</tbody>
</table>

TOTAL                                |          |           | 150,000    |
TOTAL PROJECT                        | 2        | 150,000   | 300,000    |
Project Title: 9.3 Video Conferencing Capabilities

Project Description
The videoconferencing project retrofits a classroom within the Media Center to support video conferencing over IP, ISDN or mixed networks. Up to ten sites can be cascaded simultaneously.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polycom VS-4000 Videoconferencing Kit</td>
<td>1</td>
<td>8,000</td>
<td>8,000</td>
</tr>
<tr>
<td>Sony EVID31 Videoconferencing Camera</td>
<td>1</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Hi-Resolution Document Camera</td>
<td>1</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Monitor</td>
<td>2</td>
<td>1,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Scan Converter</td>
<td>1</td>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>Equipment Cart</td>
<td>1</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>Polycom Dual Microphone</td>
<td>1</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>Speaker Set</td>
<td>1</td>
<td>1,500</td>
<td>1,500</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>15,500</strong></td>
</tr>
</tbody>
</table>
Project Title: 9.4 Automation System for TV22

Project Description

The Media Center presently has a tape-driven playback system that is dated, limited in capabilities and must be manually controlled. Playback from the present analog system is limited to ¼ inch and ½ videotapes which lack video quality and cannot be automated. The proposed automation system is tapeless and server-driven, which would eliminate video decks and manual control by a technician. The system can also accommodate digital and high definition video decks, which allows for more playback and programming flexibility.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADTEC Turn-key Automation System with Hardware</td>
<td>1</td>
<td>30,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Encoder/Drive and Software</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTAL 30,000
PROJECT TITLE: 9.5 Acquisition of Pre-produced Programs for TV22

Project Description

The college maintains a 24-hour educational cable channel. Approximately 6 hours of daily programming is provided by Newark Public Schools. The production of Homework Hotline accounts for another 4 hours and ECC should produce or provide programming to fill the rest. While there is a Community Bulletin Board that advertises college sponsored programs and activities, it cannot account for the balance of programming to be provided to the community. Thus, there is a need to purchase pre-produced programming from outside sources.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newsreel/Women Make Movies/California Newsreel, and Other Program Providers</td>
<td>1</td>
<td>15,000</td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>15,000</td>
</tr>
</tbody>
</table>

Evaluation

1. Feedback from the ECC Community
2. Feedback from the Cablevision subscribers
PROJECT TITLE: 9.6 “Fiber Optic” Link to Cablevision

Project Description

This project enhances the quality of video leaving Essex County College going to Cablevision’s head end. The improved video quality is seen by cable subscribers.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber Optic Link</td>
<td>1</td>
<td>TBD</td>
<td>TBD</td>
</tr>
</tbody>
</table>

TOTAL
PROJECT TITLE: 9.7 “Smarter than Smart” Classroom ~ Renovation of MPT Screening Room

Project Description

The Smarter than Smart Classroom project would convert the traditional classroom in the MPT center into an intimate training facility for faculty and a multimedia presentation classroom for the Communications program. In addition to interactive capability, the classroom would have internet access and video conferencing capability.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multimedia Site Live (broadcast lesson over internet)</td>
<td>1</td>
<td>25,000</td>
<td>25,000</td>
</tr>
<tr>
<td>Wireless Network Access</td>
<td>1</td>
<td>IT</td>
<td>IT</td>
</tr>
<tr>
<td>Wired Internet Access</td>
<td>1</td>
<td>IT</td>
<td>IT</td>
</tr>
<tr>
<td>Multimedia Lectern (Special furniture)</td>
<td>1</td>
<td>1,639 MPT</td>
<td>3,278 MPT</td>
</tr>
<tr>
<td>Multi-Board Smart Board Projection System</td>
<td>1</td>
<td>3,000</td>
<td>3,000</td>
</tr>
<tr>
<td>Document Camera [High Resolution]</td>
<td>1</td>
<td>4,000</td>
<td>4,000</td>
</tr>
<tr>
<td>Audio Amplifier, Microphone &amp; Speakers</td>
<td>1</td>
<td>500</td>
<td>500</td>
</tr>
<tr>
<td>DVD,CD,MP3,VHS recorder/players</td>
<td>1</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Instructor’s Multimedia Computer Workstation w/ DVD-RW/CD-RW and Zip drives</td>
<td>1</td>
<td>2,000</td>
<td>2,000</td>
</tr>
<tr>
<td>Theater Style Chairs</td>
<td>20</td>
<td>100</td>
<td>2,000</td>
</tr>
<tr>
<td>Carpeting</td>
<td>1</td>
<td>800</td>
<td>800</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>41,578</strong></td>
</tr>
</tbody>
</table>

This project will be integrated with 6.1 and will be one of four (38,778)
smartrooms proposed per year. The cost of some equipment in this smartroom is already accounted for except for theater style chairs and carpeting

| TOTAL | | | 2,800 |

**PROJECT TITLE: 9.8 Additional Satellite Receiving Station**

**Project Description**

Internal and external requests for down linking are increasing. To better meet the requests, the Center would like to install an additional Satellite Receiving Station. This second dish would enable the center to down link two programs simultaneously. This would not only be beneficial to the college community but possibly bring additional revenue into the college via rental opportunities.

**Resources Needed**

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chaparelle Satellite Receiver/Dish Combination</td>
<td>1</td>
<td>30,000</td>
<td>30,000</td>
</tr>
</tbody>
</table>

| TOTAL | | | 30,000 |
PROJECT TITLE: 9.9 Transition to High Definition Television ~ Upgrade facility and equipment

Project Description

The Federal Communication Commission (FCC) has mandated that all television stations and cable providers convert from the present NTSC (National Television Society Committee) 4:3 format to the new High Definition (HDTV) 16:9 standard by 2006. It is imperative that funds be set aside for the transitioning TV 22 to HDTV for broadcast and instructional purposes.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>HDTV Cameras</td>
<td>4</td>
<td>30,000</td>
<td>120,000</td>
</tr>
<tr>
<td>HD 16:9 Aspect Ratio Monitors</td>
<td>12</td>
<td>2,000</td>
<td>24,000</td>
</tr>
<tr>
<td>HD Video Switcher</td>
<td>1</td>
<td>100,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Monitoring Vector/Waveform Scopes</td>
<td>8</td>
<td>2,500</td>
<td>20,000</td>
</tr>
<tr>
<td>Video Distribution Amplifiers</td>
<td>20</td>
<td>1,000</td>
<td>20,000</td>
</tr>
<tr>
<td>HD Record Master Deck</td>
<td>2</td>
<td>20,000</td>
<td>40,000</td>
</tr>
<tr>
<td>HD Play Only Deck</td>
<td>2</td>
<td>15,000</td>
<td>30,000</td>
</tr>
<tr>
<td>HD Character Generator</td>
<td>1</td>
<td>30,000</td>
<td>30,000</td>
</tr>
<tr>
<td>Patch Bay</td>
<td>30</td>
<td>500</td>
<td>15,000</td>
</tr>
<tr>
<td>Cabling</td>
<td>1</td>
<td></td>
<td>15,000</td>
</tr>
<tr>
<td>Labor</td>
<td>1</td>
<td></td>
<td>15,000</td>
</tr>
<tr>
<td>Consultant</td>
<td>1</td>
<td></td>
<td>2,500</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td><strong>436,500</strong></td>
</tr>
</tbody>
</table>
PROJECT TITLE: 9.10 Gymnasium Sound Project

Project Description

While the gym was originally designed to simply host sporting events, in recent years the gym has become a multipurpose facility hosting such events as graduations, theatrical productions, conferences and concerts. Presently, the sound system is somewhat adequate for sporting events, however it is not suitable for events outside of sports. There is tremendous need to acoustically treat the gym to solve many of the sound reinforcement problems as a precursor to investment in a permanent sound system.

The project benefits are increased intelligibility of speech when combined with appropriate sound reinforcement equipment either rented or purchased.

Resources Needed

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Specifications</td>
<td>1</td>
<td>20,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Acoustical Treatment</td>
<td>1</td>
<td>20,000</td>
<td>20,000</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td>40,000</td>
</tr>
</tbody>
</table>

Evaluation

Next Steps
- Design Consultants complete an in depth analysis of the gym to develop an implementation plan bid.
- Install a permanent gym sound system that can be used for graduation and non-sporting events.
APPENDIX A

ACAC EVALUATION CRITERION FOR

PLANNING DOCUMENT REVIEW
Academic Computing Advisory Committee
Criteria for Review of Planning Documents

The Committee will use the following criteria to review current planning documents in order to determine the degree to which the technology components are relevant and supportive of teaching and learning.

1. **Face Validity** - In general, is the plan “a good idea?” Is the plan needed? Does the plan, “on its face” address the issues in a broad sense? Is it realistic? In which areas of the college will the plan have a significant impact?

2. **Content Validity** - Looking closer at the details, will the plan’s procedures address the issues with respect to enhancement or facilitation of the teaching and learning process in your division/area? Yes, no, why or why not? To what degree do the procedures address the issues?

3. **Implementation** - Has the plan been put into action? To what degree has the plan been followed? Are the plan’s goals and objectives being realized? Does the plan’s implementation have a positive effect on your division/area? If the plan has not been implemented or if the stage that affects your area has not been implemented, do you think implementation will have a positive effect? Why or why not?

4. **Justification** – Is there a clear and adequate explanation of expenditures? Are the expenditures linked to specific goals and objectives?

5. **Flexibility** – To what degree is the plan flexible and adaptive to changing needs?

6. **Contingency** – Does the plan articulate the process used to prioritize goals and objectives in the event of fiscal shortfalls? Does the plan identify persons involved in the decision making process and the roles they play in the prioritization process?
APPENDIX B

ACAC STRATEGIC RECOMMENDATIONS
One of the ACAC goals for Academic Year 2002 – 2003 is to review the technology components of current planning documents (Master Plan, Computer Desktop Replacement Plan, etc.) to determine if they continue to be relevant and supportive of teaching and learning. The committee subsequently developed an evaluation criterion to review such documents.

The committee began by reviewing the Institutional Strategic Plan 2002 – 2005. The Committee discussed specific technology related strategies that may be added to the strategic plan to address goals one, four and six.

The goals are as follows:

2. The enhancement and coordination of developmental education, advising, tutoring, mentoring and other academic support services to promote greater retention and student success.

5. Enhance Academic Quality.

7. Create effective and efficient administrative and technology infrastructure to support programs and mission.

Consistent with the strategic plan, ACAC has developed additional strategies using the same format, numbering convention and evaluation measures as the original strategic plan document.

Our recommendations in brief cover:

♦ Providing technology/staffing support for a new learning center,
♦ Establishing an upgrade schedule for hardware located in academic computing labs, specialized labs and faculty offices
♦ Providing centralized printing
♦ Providing resources to enhance information literacy
♦ Enhancing security and efficiency of academic computing labs
♦ Enhancing the SCT Banner system.

The Committee is forwarding the following specific strategy recommendations that are based on our deliberations.
<table>
<thead>
<tr>
<th>Goal #</th>
<th>Strategy</th>
<th>Activity</th>
<th>Responsibility</th>
<th>Timeline</th>
<th>FY05</th>
<th>FY06</th>
<th>FY07</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.4</td>
<td>Enhance Academic Support Initiatives to increase student success rate</td>
<td>Purchase and install computers to be utilized in a distributed Learning Center environment.</td>
<td>Information Technology</td>
<td>3, 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.3.5</td>
<td>Enhance Academic Support Initiatives to increase student success rate</td>
<td>Hire trained learning lab personnel to staff distributed learning center computer lab(s).</td>
<td>Director Learning Center</td>
<td>3, 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5.3</td>
<td>Institute technology enhancement s for maximum instructional effectiveness</td>
<td>Implement a program to evaluate and periodically upgrade computer laboratory equipment and peripherals to keep pace with hardware and software advances. (open/teaching computer labs)</td>
<td>Information Technology  Division Chairs ACAC</td>
<td>Development of a written technology plan that articulates the details.</td>
<td>Implementation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goal #</td>
<td>Strategy</td>
<td>Activity</td>
<td>Responsibility</td>
<td>Timeline</td>
<td>FY05</td>
<td>FY06</td>
<td>FY07</td>
<td>Evaluation</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
<td>----------</td>
<td>----------------</td>
<td>----------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>4.5.4</td>
<td>Institute technology enhancement(s) for maximum instructional effectiveness</td>
<td>Implement a program to annually upgrade faculty-computing equipment to keep pace with hardware and software advances consistent with the college’s minor capital request calendar/process (faculty office computers).</td>
<td>Information Technology Division Chairs Directors Assoc. Dean Learning resources</td>
<td>Development of a written technology plan that articulates the details.</td>
<td>Implementation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5.5</td>
<td>Institute technology enhancement(s) for maximum instructional effectiveness</td>
<td>Implement a program that annually evaluates for periodic upgrade, science and specialized lab equipment to keep pace with advances in scientific methods and practices consistent with the college’s minor capital request calendar/process (Biology, Chemistry, Nursing, and Manufacturing labs).</td>
<td>Division Chairs Dean of Faculty VP Acad. Affairs</td>
<td>Implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.5.6</td>
<td>Institute technology enhancement(s) for maximum instructional effectiveness</td>
<td>Implement a system that centralizes divisional printing/duplication through the use of computer networked copier equipment.</td>
<td>Information Technology Manager Print Shop Auxiliary Services</td>
<td>Development of a written technology plan that articulates the details.</td>
<td>Implementation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goal #</td>
<td>Strategy</td>
<td>Activity</td>
<td>Responsibility</td>
<td>Timeline</td>
<td>FY05</td>
<td>FY06</td>
<td>FY07</td>
<td>Evaluation</td>
</tr>
<tr>
<td>-------</td>
<td>--------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------</td>
<td>----------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>---------------------</td>
</tr>
<tr>
<td>4.5.7</td>
<td>Institute technology enhancements for maximum instructional effectiveness</td>
<td>Contract to expand the ECC 24/7 electronic library that provides web access to full-text reference books 24 hours a day, seven days a week. Advance to the next level of computer and information literacy by identifying and requiring students to use discipline specific software and databases (ECC Self-Study Report, February 2001, p. 152)</td>
<td>Associate Dean – Library&lt;br&gt;Library Liaisons&lt;br&gt;Information Technology</td>
<td>FY05</td>
<td></td>
<td></td>
<td></td>
<td>Implementation</td>
</tr>
<tr>
<td>4.5.8</td>
<td>Institute technology enhancements for maximum instructional effectiveness</td>
<td>Provide a web server to support web-enhanced courses. Faculty may use course web-sites to post course outlines, assignments, notes announcements or other materials.</td>
<td>Information Technology</td>
<td>FY06</td>
<td></td>
<td></td>
<td></td>
<td>Development of a written technology plan that articulates the details. Implementation</td>
</tr>
<tr>
<td>4.5.9</td>
<td>Institute technology enhancements for maximum instructional effectiveness</td>
<td>Provide a dedicated technical resource person to assist faculty in developing and maintaining web enhanced courses and materials</td>
<td>V.P. Academic Affairs&lt;br&gt;Dean of Faculty</td>
<td>FY07</td>
<td></td>
<td></td>
<td></td>
<td>Implementation</td>
</tr>
<tr>
<td>6.8.3</td>
<td>Enhance security and efficiency of Academic Computing Network</td>
<td>Set up network and email accounts for students. Only registered, paid students will have access to computer labs. Email accounts will provide an additional medium to send college correspondence.</td>
<td>Information Technology</td>
<td>FY08</td>
<td></td>
<td></td>
<td></td>
<td>Development of a written technology plan that articulates the details. Implementation</td>
</tr>
<tr>
<td>Goal #</td>
<td>Strategy</td>
<td>Activity</td>
<td>Responsibility</td>
<td>Timeline</td>
<td>FY05</td>
<td>FY06</td>
<td>FY07</td>
<td>Evaluation</td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>----------</td>
<td>----------------</td>
<td>----------</td>
<td>------</td>
<td>------</td>
<td>------</td>
<td>------------</td>
</tr>
<tr>
<td>6.8.4</td>
<td>Enhance security and efficiency of Academic Computing Network</td>
<td>Purchase network printer accounting software to manage paper and printing supply costs and student printer usage in the open labs. The software can manage printing by student account/password or smart card.</td>
<td>Information Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Development of a written technology plan that articulates the details. Implementation</td>
</tr>
<tr>
<td>6.8.5</td>
<td>Enhance SCT Banner system</td>
<td>Install additional Banner features (e.g., a query command for faculty and administrators to produce reports) and develop a process whereby administrators can order additional features. (ECC Self-Study Report, February 2001, p. 151)</td>
<td>Information Technology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Development of a written technology plan that articulates the details. Implementation</td>
</tr>
</tbody>
</table>
APPENDIX C

ESSEX COUNTY COLLEGE

COMPUTER REPLACEMENT PLAN FOR

ACADEMIC LABS
Essex County College
Computer Replacement Plan for Academic Labs

Background:

ECC began to focus on the issue of broad based support for academic computing in 1981, when a Computer Task Force, Chaired by Professors T. Stafford and L. Gilbert, was established. In the committee report of March 1982, various recommendations were made, including the attainment of fundamental computer literacy competency as part of every student's graduation requirements. The report also acknowledged that computer literacy was a relative competency, best defined by each academic discipline.

The primary obstacle in that period was the cost of providing sufficient computing access across the disciplines, since the primary vehicles for academic computing were expensive mainframe and minicomputer systems. Therefore, in practice, the recommendations of the Computer Task Force were unable to be accomplished. However, with the advent, and eventual dominance of less costly microcomputers in the marketplace, the goal of computer literacy for all ECC students was feasible.

Other colleges, with student populations coming from a higher economic strata, either provided students with a standard microcomputer, funded by new annual fees, or required students to purchase microcomputers with their own funds. ECC decided to expand the number of computing laboratories in order to ensure that our students would not be second class citizens in this technological age. With more access, more academic disciplines, particularly those with courses in the general education core curriculum, were able to incorporate computer usage in their courses.

However, universal access for students places demands upon the College to maintain hardware and software at or near to current industry standards. It cannot be done without a systematic annual hardware replacement plan. The time interval between releases of new microcomputer technology is steadily decreasing. This causes a corresponding decrease in the interval between new software releases targeted to run on the new hardware. Clearly, the standard interval between replacing older student laboratory computers must be on an annual basis to keep up with these trends.

The goals of the replacement plan are to:

- Assure that appropriate computing resources are available in the academic labs to support the mission of the college

- Implement minimum standards for computing equipment on campus (first adopted in 1996 and reviewed annually by the IT department with input from ACAC); and encourage planning, cost-effective installation of new equipment and disposal of old equipment.

The initial replacement strategy involves dividing computers into two categories:

- Those replaced every year by a new computer
- Those replaced every year by computers removed from other labs
Each computer in the replacement plan is designated as being in one of these two groups with a tentative date indicated for replacement.

**Why Phased-in plan:**

- Phased in percentage of equipment replacement at regular yearly intervals is always less costly in dollars and effort than single replacements of all equipment every 4 years. The incremental changes that can be managed, including training of technical support personnel must be contrasted with the enormous difficulty of having to suddenly, rather than transitionally, understand new methodologies. The phasing in plan will always have a pool of new computer systems to run the latest versions of Operating Systems and Applications.

- Although hardware is steadily increasing in performance, the hardware costs are steadily decreasing. We have passed the point where upgrading components is cheaper than purchasing new systems. In many cases it is not even possible to upgrade older systems.

- The ECC student population as a whole is unable to afford their own computer system, therefore, it will be necessary to accommodate student computing needs by providing state of the art computer laboratories.

**Hardware standards:**

The following guidelines for standards are based on the current technology available combined with the current needs of the end-user today. These apply to both the Macintosh and Windows-intel platforms. The primary considerations for each configuration (desktop, printing) are:

- Ease of connectivity to the college network
- Consistent performance of all integrated components in our network environment
- Industry leader with an established track record in manufacturing, sales, and service
- Successful in-house experience with the chosen product and configuration
- Serviceability by the vendor
- The machine has a minimum campus lifetime of four years

**Macintosh Configurations:**

- **Desktop:** Power Macintosh G4
  - Dual 1.42 GHz PowerPC G4 Processor
  - 512 MB RAM
  - 40 GB Drive
  - 48X CD-Rw Drive
  - 250 MB Zip Drive
  - Ethernet Adapter 1000 BaseT
  - 17" Color Monitor
  - Keyboard
  - Mouse
Windows-intel Configurations:

- **Desktop:** Dell Optiplex GX270
  - 2.8 GHz Pentium Processor
  - 512 MB RAM
  - 40.0 GB Hard Drive
  - 250 MB Zip Drive
  - 48X CD-RW Drive
  - Iomega Zip Drive
  - Ethernet Adapter Gigabit 10/100/ 1000
  - 17" Flat Panel Color Monitor
  - Keyboard
  - Mouse
  - Sound and Speakers
  - Windows 2000 professional

Software standards:

Advantages

- Improved Data Sharing
- Simplified Budgeting and Purchasing
- Improved Support
- Improved Training
- Smoother Software Installation and Upgrades
- Simplified Software Licensing

Windows-Intel

Microsoft Windows 2000 professional
Microsoft Office XP
Internet Explorer
McAfee Antivirus
Specialized Instructional Software (Accounting, Compilers etc.)

Macintosh

Macintosh Operating System
Adobe Illustrator
Adobe Photoshop
QuarkXPress
Internet Explorer
McAfee Antivirus
Microsoft Office XP for Mac
<table>
<thead>
<tr>
<th>New PC’s</th>
<th>Re-deployed PC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>From</td>
</tr>
<tr>
<td>CFT-111</td>
<td>CFT-111</td>
</tr>
<tr>
<td>CFT-211</td>
<td>CFT-211</td>
</tr>
<tr>
<td>WEC-107</td>
<td>WEC-107</td>
</tr>
<tr>
<td>WEC-109</td>
<td>WEC-109</td>
</tr>
<tr>
<td>3100C</td>
<td>3100C</td>
</tr>
<tr>
<td>4102</td>
<td>4102</td>
</tr>
<tr>
<td>4165A</td>
<td>4165A</td>
</tr>
<tr>
<td>Library Lab</td>
<td>Library Lab</td>
</tr>
<tr>
<td>4153</td>
<td>4153</td>
</tr>
<tr>
<td>2114</td>
<td>2114</td>
</tr>
<tr>
<td>1192</td>
<td>1192</td>
</tr>
<tr>
<td>Police academy</td>
<td>Police academy</td>
</tr>
</tbody>
</table>

**Proposed Purchasing Plan:**

1. New purchases will adhere to minimum ECC networked workstation standards
2. New purchases will adhere to ECC desktop hardware standards (either Intel or Macintosh)
3. Installed Operating Systems will adhere to ECC OS standards
4. Installed software in academic labs will be determined by academic instructional needs
5. New purchases will be made in the late Spring semester for installation before the following Fall, 
   To minimize disruption in student computer labs and offices
6. Replace one quarter (25%) of all computer systems each year.
7. Deploy downward (“Bump down”), according to usage requirements, the remaining 75 %. 
8. Retain some of the non-functional replaced PCs for usage in a spare parts inventory
9. Re-deploy some of the replaced PCs for use in the Library as information retrieval terminals 
10. Re-deploy some of the replaced PCs for use in dedicated tutorial centers or overflow labs that 
    can be established to handle increased student demand during peak periods (midterm, end of term)
Essex County College

Computer Replacement Plan for Staff

Computers play a major role in Essex County College's educational goal of strengthening its academic offerings by meeting the demands of our users and the changing environment in which they operate. These days the IT environment is complex and rapidly changing - desktop proliferation, and diversity, system interdependencies, network size, and complexity. This plan is being implemented so that Essex County College's technology infrastructure maintains high performance standards. This will facilitate access to institutional information and data by faculty, staff, students and administration.

Standard Software

- Microsoft Windows 2000 Professional
- Microsoft Office XP
- GUI Banner
- Internet Explorer
- Ms Exchange and Outlook
- McAfée Antivirus
- The Accounting, Math, Nursing, etc. are specialized software requested by teaching staff
- The Macs have QuarkXpress, Illustrator, Mavis Beacon, Pagemaker, and Photoshop

Minimum Requirements

The minimum requirements to run the above software will be 128MB Ram and 10 GB hard disk space and 8MB-video memory.

CATEGORY

Users such as administration, staff, students and faculty are categorized in three groups. The breakdown enables a better understanding of the application support that is needed from a stand-alone PC.

Group A

"A" is the ideal group that operates on the minimum PC requirement. Their needs are e-mail, office XP, database, etc. The office clerks, secretaries, office managers, etc. falls under this category with the exception of staff that uses intensive spreadsheets. Users that rely heavily on spreadsheets such as Human Resources and payroll belong under Group B.

Group B

This group uses data intensive application as well as additional work related software. The instructional labs run additional applications other than the standardized software such as Word, Excel, Cobol, Course Lab, etc. Memory has to be higher than the minimum requirement.
Group C

Group "C" is the high-end power user that needs an accelerated performance PC for video solution. Whatever the choice of graphics requirements within CAD, digital content creation and software engineering or simulation, these specialized software operate properly on 256 MB ram of working memory or higher.

Proposed Purchasing Plan

1. New purchases will adhere to minimum ECC networked workstation standards
2. New purchases will adhere to ECC desktop hardware standards (either Intel or Macintosh)
3. Installed Operating Systems will adhere to ECC OS standards
4. New purchases will be made in the late Spring semester for installation before the following Fall, To minimize disruption in offices
5. Replace one quarter (25%) of all computer systems each year.
6. Deploy downward ("Bump down"), according to usage requirements, the remaining 75 %.
7. Retain some of the non-functional replaced PCs for usage in a spare parts inventory
8. Re-deploy some of the replaced PCs for use in the Library as information retrieval terminals
9. Area heads will determine the distribution list for their area.
APPENDIX E

COMMUNICATION PROCESS

REGARDING REPLACEMENT/UPGRADE OF LAB

(INCLUDING LEARNING RESOURCES)
Communication Process Regarding Replacement/Upgrade of Lab (Including Learning Resources)

Process:
1. Director of IT and staff develop timetable for deployment of new hardware/software. Labs room(s) to be upgraded are identified. The IT director or staff will complete the Information Technology portion of impact form.
2. Deployment timetable and lab room(s) information on impact forms provided to area head (Dean) who will share it with Chairperson and Directors. The Dean will provide a deadline for Chairpersons to provide completed impact statement(s).
3. Chairpersons/Directors will identify affected courses and instructors.
4. Chairperson/Directors consult with affected faculty to assess the impact on instruction and solicit requirements for a seamless transition. The faculty may specify any special software/hardware configurations or features necessary to provide instruction. Faculty may also air concerns/issues that may be considered. Faculty will put all specialized data files in folders for transfer.
5. Chairpersons/Directors will submit impact statement(s) to the Dean by the deadline.
6. The Deans will provide impact statements to the Director of IT for consideration.
7. The Director of IT may follow-up with the Deans to resolve outstanding issues/concerns. The Dean may consult with the Chairperson/Director for additional assistance in resolving concerns/issues raised by the Director of IT or the faculty.

Sample Form:

To be completed by IT

Computer Lab Room: 4165B

Proposed Modification Date: October 25, 2001

Description of Modification: The old Dell Precision 330 computers in room 4165B will be upgraded to new Dell Optiplex 5000 10 Ghz computers. The new computers will utilize the Microsoft Office ZX suite of applications delivered from an applications server. The computers will not have hard drives, but 2 gigabyte zip drives will be provided for student use. All computers will use the new Microsoft ZX operating system.

Impact Statement Due Date: October 5, 2001

Impact Statement to be completed by Chairperson/Director

Affected Courses/Instructors:

Concerns:

Special Needs/Recommendations: