

**DEPARTMENT OR PROGRAM TITLE: Computer Networking and Electronics (CNET)**

The CNET department in CTIS offers an AS degree in Enterprise Networking and five certificates as follows:

- A+ Preparation- Skills Certificate (27 units)
- Cisco CCNA Academy- Skills Certificate (27 units)
- Cisco CCNP Academy- Skills Certificate (20 units)
- MCSA Preparation- Skills Certificate (25 units)
- MCSE Preparation- Skills Certificate (37 units)

#### A. ASSESSMENT OF INTERNAL AND EXTERNAL FACTORS AND STUDENT SUCCESS

##### EXTERNAL FACTORS

The biggest external factor effecting the department (and the rest of the CTIS division) is the collapse of the hi-tech infrastructure in Silicon Valley and, to a lesser extent, the rest of the country. Computer networking and administration seems to be an area that is affected the least, however. There is a continued demand (albeit lower) for people in this area. Here are the factors in more detail:

- Student enrollment in CNET has been declining, but that decline seems to have leveled off.
- All companies, large and small, need to have its network administered... and this cannot easily be done at a distance. This explains why the job market in this area continues to be a bright spot in the otherwise dismal Tech-industry.
- Companies are demanding more and more of our students... they need to know UNIX, Microsoft, Cisco, and also have a wide understanding of networking in general. (It's no longer OK just to have a random certificate and be willing to work). It is because of this that CNET has expanded it's AS offering to include a smattering of all these topics in the Enterprise Networking degree.
- Wireless networking is playing a larger and larger role in the market place. This is another area which requires some curricular attention.
- The large unemployed workforce has made it relatively easy to find qualified part time instructors in this area... but will this revert to form when the job market clarifies?

##### INTERNAL FACTORS

- CNET enrollment has gone from a high of 9300 WSCH in the 99/00 academic year to an estimated 6200 WSCH in 02/03. This is a 33% decline. The good news is that the 6200 number seems to be holding for a second year, perhaps indicating that the decline has abated.
- CNET students are primarily vocational, and fall into one of two categories
  - Working students upgrading their career skills who mainly attend afternoon and evening classes. Their goal is a certificate or possibly an additional AS degree.
  - Continuing ed folks who are coming to the school with a specific learning outcome in mind. (They may, for example wish to learn how to network their home computers). They will come, stay for a quarter or two and then leave.
- The CNET approach to teaching and learning is very hands-on. The emphasis is on laboratory work and lecture-in-lab style classes. This has been positively received by our students, many of whom say that they come here specifically because of that. This does put us under some pressure to keep the labs up to "snuff" both in software and hardware. So far, we have been able to do this with excellent donations from industry and a lot of hard work by the staff in the set-up.
- CNET curriculum is changing at the pleasure of the big industry players. When Microsoft, for example, comes out with a new version of Windows, we need to alter the curriculum and the classes to reflect this (or the students don't come!). This puts pressure on the department to modify classes and curriculum every year to keep up. Unlike in the other CTIS departments, software costs are not a major factor, since the school has a license agreement with Microsoft, and we are getting excellent donations to support the CISCO academy.

#### B. STUDENT SUCCESS EVALUATION

The last student success statistics available are 01/02 numbers and these show that CNET is running at about an 81% success rate. This is three percentage points below the overall college success rate of 84% during that same period.

### C. STUDENT EQUITY/DIVERSITY ANALYSIS

Student success by ethnicity analysis shows that Black (74%), Pilipino (67%) and Hispanic (74%), students under perform the CTIS average success rate by 7%-14%. The White and Asian populations do the best at 81% and 84% respectively.

The CTIS student population contains 3.3% more Asians, 1.0% more Blacks, 1.1% fewer Hispanics, and 11% fewer Whites than the at-large population. The male-female ratio is 4.36 in CNET versus .85 in the overall population.

### D. ACTION PLANS AND PROPOSED PROGRAMMATIC CHANGES

#### 1. Program Goals Related to Educational Master Plan and Partnership for Excellence:

- a. An outreach effort will be underway to attract more women to the CNET program.
- b. The LITES program will add CNET 50 to the list of classes that it covers to improve the performance of first time CNET students.
- c. An advisory committee must be re-instituted to oversee this area.
- d. We will continue outreach activities with the local High Schools to bring in those students who have shown an interest in networking by taking the first and perhaps the second CCNA class in their school.
- e. Continue to articulate our CNET programs with the High Schools.
- f. Continue working with OTI students

#### 2. Other Program Improvement Plans:

- a. Develop a program in wireless networking to respond to customer requests
- b. Work with the measure E people to insure that the renovated building (4300) serves the needs of CNET
- c. Add a third track to the Enterprise Networking degree that is less "product" dependent with more emphasis upon networking as a discipline. This track would be more suitable to potential transfer students.
- d. Upgrade the MCSE and MCSA curricula to integrate the new version of Windows that should shortly be released... (this will be a continuing issue).

### E. ENROLLMENT AND PRODUCTIVITY GOALS

Productivity in CNET has been in the 450's range for a number of years, and estimates for the 02/03 academic year are that this will not change very much. This is a bit surprising in that the enrollments have experienced a 1/3 drop over that same time period... but can be explained by the fact that the popular classes are still doing just fine, but have enrollment limited to the number of students that can fit into the labs (about 30), and the unpopular classes have simply been cancelled. Goals for the upcoming year are that enrollment increase to the 7000 WSCH level (using targeted marketing etc) and that the productivity be raised to the high 400 range.

### F. SUMMARY OF RESOURCES REQUESTED

#### 1. FULL-TIME EQUIVALENT FACULTY OR STAFF NEEDS:

Faculty: The CNET department now has an FTEF of approximately 4.0 for the 02/03 year. The portion of this that is from full time faculty is about 3.0. This results in 75% of the instruction being delivered by full timers. No additional full time faculty are anticipated at this time (not withstanding retirements et. al.).

Staff: The CNET program is now supported in four laboratories: 4222 for networking and MCSE, 4305 for UNIX administration, 4204 for the CISCO program, and 4201 for A+ (and Help desk). All of these rooms are largely faculty supported and requires little interaction with the lab staff. As the programs grow, a technician to support CNET will be required... but this is now anticipated to be a few years away.

#### 2. FACILITIES NEEDS: (Include all aspects of the physical setting, e.g., room size, seating type and arrangement, multimedia equipment, lab stations, etc., that might provide a more effective student learning environment.)

All of our nine laboratories, (including 4201, 4222, 4204, and 4305) utilize furniture of WWII vintage. They are of different styles, and to a certain degree unstable and unsafe. When the buildings are renovated next year it would be wonderful if we could replace all or most of these chairs and tables.

Most of my instructors use computer-driven projectors to augment their class presentations. Since most of the classrooms do not (at the moment) have ceiling mounted projectors, my lab staff must provide these projectors and demo units by placing them on rolling carts and bringing them to the classrooms. This is time consuming and hard on the projectors which have fragile and very expensive bulbs to replace. When the buildings are renovated, I would like to ceiling mount all of our projectors, outfitting both the 4300 and 4200 buildings with them. We already have the projectors.

The computers in most of our labs are already getting obsolete. The money that has in the past been available to replace these machines on a three-year cycle is not going to be there for the next year or two at least. These machines very much need to be upgraded. This is especially true in the 4222 lab, where the MCSE program is housed.

Software costs in this area are not a major concern so long as the district continues to have a license agreement with Microsoft.

### 3. MATERIALS AND SUPPLIES BUDGET AUGMENTATION

The discretionary budgets that can be used for supplies and materials have been decreased each year for the past three years. This is making it very difficult to buy the supplies necessary to hold classes (dry erase markers, paper, etc.). Budgets need to be restored to two-year ago levels as a minimum, and be then subject to yearly COLA's to take care of increased costs.

Evaluation of academic year **2002-03**.

List names of participants assisting in this program review.

Primary program contact person: C. Lindauer

LindauerChuck@fhda.edu

Full-time faculty: Johnson, Farber, Murphy

Part-time faculty:

Administrators: Lindauer

Classified staff:

Students:

Date of evaluation: 10/29/03

Phone or email address:

**PROGRAM NAME: Enterprise Networking**

Degree/certificate options available:

- AS degree in Enterprise networking
- Certificates:
  - A+ Prep
  - CCNA Academy
  - CCNP Academy
  - MCSA Preparation
  - MCSE Preparation

**PROGRAM MISSION:**

Upon completion of this program, the student will have a wide and comprehensive understanding of the makeup and operation of computer networks in a corporate environment. This will include hardware and software Classes are hands-on, providing experience in use of the equipment and software.

**EXPECTED STUDENT OUTCOMES** A student completing this should be able to:

- 1) Construct and troubleshoot PC hardware and operating system
- 2) Configure a CISCO (and other) network, including cable layout
- 3) Setup and troubleshoot a Microsoft Network
- 4) Work comfortably in a UNIX environment

<b>INTENDED OR DIRECT OUTCOMES: Program-Specific Outcomes and Attributes Desired of Program Graduates</b>			
<b>PROGRAM CONTENT PROFICIENCIES/COMPETENCIES</b>	<b>Desired Attributes:</b> What should a student be able to do upon graduation?	<b>REQUIRED PROGRAM COURSES</b> related to this outcome: Where do students acquire experience?	<b>OUTCOME MEASURES —</b> Evidence or Sample Demonstrating Deep Learning: How do we know what a student has achieved?
1) PC H/W & OS	<ul style="list-style-type: none"> <li>• Build a PC</li> <li>• Troubleshoot a PC</li> <li>• Install and debug a PC OS</li> </ul>	CNET 111, 114	<ul style="list-style-type: none"> <li>• Completed CNET 111 &amp; 114</li> <li>• Demonstrated ability to construct a PC</li> <li>• Attain A+ certification (optional)</li> </ul>
2) Cisco Network Configuration	<ul style="list-style-type: none"> <li>• Detail a network layout design</li> <li>• Configure the routers, switches &amp; cables to implement a network</li> <li>• Be familiar with a range of network HW</li> </ul>	CNET 95A, 54A, 54B	<ul style="list-style-type: none"> <li>• Completed class work</li> <li>• Attainment of CCNA certificate (Optional)</li> </ul>
3 )Microsoft Network	<ul style="list-style-type: none"> <li>• Install and debug a Microsoft windows LAN</li> <li>• Perform a variety of debug operations</li> </ul>	CNET 53, 59, 51A, 51B CNET 51C(optional)	<ul style="list-style-type: none"> <li>• Completed class work</li> <li>• Attainment of MCSA certification (optional)</li> </ul>
4) UNIX Environment	<ul style="list-style-type: none"> <li>• Be able to operate a UNIX Network</li> <li>• Be capable of administering a simple UNIX server</li> </ul>	CIS 68A, 68C1 CNET 68	<ul style="list-style-type: none"> <li>• Completed coursework</li> </ul>
<b>CORE COMPETENCIES</b>	<b>CORE COMPETENCIES: Outcomes and Attributes Distinct to This Program</b>		
Communication	<ul style="list-style-type: none"> <li>• Student should be able to effectively work as a member of a technology team</li> <li>• Student should be able to provide clear written and oral briefings to explain concepts and proposals</li> </ul>	CNET 54A, B, C, D CNET 51A, B, C, D ENGL 1A	<ul style="list-style-type: none"> <li>• Success in Cisco and Microsoft classes which are taught as a team experience</li> <li>• Satisfactory grade in ENGL 1A</li> </ul>

PROGRAM CONTENT PROFICIENCIES/COMPETENCIES	Desired Attributes: What should a student be able to do upon graduation?	REQUIRED PROGRAM COURSES related to this outcome: Where do students acquire experience?	OUTCOME MEASURES — Evidence or Sample Demonstrating Deep Learning: How do we know what a student has achieved?
Computation	<ul style="list-style-type: none"> <li>• Student should be able to understand network addressing schemes</li> </ul>	CNET 61, 68, 59, 53 MATH 105 CIS 68C1	<ul style="list-style-type: none"> <li>• Success in class</li> </ul>
Creative, Critical & Analytical Thinking	<ul style="list-style-type: none"> <li>• Student should be able to design a network which is a multi step process requiring considerable analysis</li> </ul>	CNET 68 CNET 54A, B, C, D	<ul style="list-style-type: none"> <li>• Examples of networks that are created in CNET 68 and the 54 Series</li> </ul>
Community/ Global Consciousness & Responsibility		Internships (Optional)	<ul style="list-style-type: none"> <li>• Completion of internships, preferably helping a non-profit</li> </ul>