

Program Review Year 2007 – 2008

Name of Program:

Computer Network Certificate

Program Review Team Members

Name

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Title

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SECTION SIX: SUMMARY

I. CONCLUSIONS: PROGRAM STRENGTHS AND WEAKNESSES

A. List and describe the program's major strengths, based on information obtained in the Program Review. Cite evidence for each identified strength.

Course Sequence and Content:

The Computer Network Certificate is specifically designed to be completed in one year. This gives the student an opportunity to start in an entry-level position in the workforce. The courses which include Computer Network I (CTN210) and Computer Network II (CTN222) in the Electronic Technology and Computer Systems option and Computer Networking Certificate prepare the student to pursue a CompTIA Network+ Certification. Having both a college education and a recognized and trusted certification from CompTIA makes the student more marketable, which leads to better job opportunities. The Computer Network Certificate is a challenging program, one that meets the needs of the students and the businesses that will ultimately hire them. In addition, the program's mainstay is the course work required to achieve both the certificate and associate degree which prepares the student to move on to employment as mentioned, or to other higher education opportunities such as the University of Massachusetts-Lowell. The sequence of courses is well formulated and increases in degree of difficulty. Critical thinking and problem solving are key components in the courses, and students build confidence in their skills as they progress. The course content is also designed to evolve with changing and progressing technologies.

The selection of text books is very important to the program. The text is designed to prepare users for CompTIA's Network+ certification exam and will also offer mapping features to the exam objectives. This book also is appropriate for an Introduction to Networking course, with thorough explanations of networking fundamentals such as protocols, network design and implementation, and troubleshooting and support.

Computer Network Lab Equipment and Classroom Environment:

The Computer Network Certificate courses are taught in a state-of-the-art classroom and laboratory environment which is a differentiator for the college. Instructors have multiple avenues in the classroom to engage the students in learning. For example, the installation and configuration to a class assignment in Local Area Networks can be approached in a number of ways. The student can be engaged by a hands-on presentation and troubleshooting session. The LAN/WAN can also be simulated by software and projected on a screen for the class to observe. Since the classrooms are equipped with computers and software, the students can simulate the network by themselves or together in a group. Additionally, the LAN can be prototyped and analyzed using the lab

equipment that is racked mounted in the classroom. Finally, the students have time for instruction, reflection and discussion during a power point presentation on the topic. Because the classroom environment accommodates multiple styles of learning, students have increased opportunities for success as well as personal growth.

Articulation Agreements with Local High Schools:

The Computer Network Certificate has established many articulation agreements with local technical high schools through Tech-Prep. This year the program has been even more aggressive in pursuing these agreements which includes an 18 credit arrangement with Greater Lawrence Technical High School. In fact, articulation agreements now include Greater Lowell High School, Whittier Technical High School, and Greater Lawrence Technical High School. The agreements have been well received and strong contacts have been established at the schools. The goal of these arrangements is to help motivate and encourage students interested in pursuing a technical education at NECC.

Program Approval for Section 30 & Trade Adjustment Act (TAA):

The Electronic Technology with Computer Network System Option has consistently been approved for both Section 30 and Trade Adjustment Act (TAA). This is an indication that NECC graduates are completing the program and getting jobs. The latest set of data sent to TrainingPro showed a 75% course completion rate and 100% of students entering employment with an hourly wage of \$18.75 per hour. All performance data numbers are obtained from the college's Institutional Research and Planning division.

B. List and describe the program's weaknesses or areas in which improvement is desirable, based on information obtained in the Program Review. Cite evidence for each identified weakness or area for improvement.

STUDENTS ENROLLMENT:

Several years ago, the Computer Network Certificate was the beneficiary of a robust training program with Lucent Technology Company. The company worked with NECC to train and provide computer network and electronic certificates and associate degrees to their work force. This agreement significantly increased student enrollment in the program. After Lucent Technology ended its training program, the enrollment in the Computer Network Certificate program declined. Also, the progression from Computer Network Certificate to an Associates' Degree offers a narrow and incomplete career path which has led to lower enrollment. Because students are limited to the Electronic Technology program with the Computer Systems option at NECC, it is likely that students will choose to pursue other avenues outside of NECC such as competitive technical and training programs to continue their advance networking education. The CTE Department needs to invest time and effort to create an alternate education pathway for the students not choosing the Electronic Technology with the

Computer Systems option. Having a progressive and inclusive education pathway should attract and preserve more computer networking students to continue with our programs at NECC. For the past two years, the enrollment for certificate and associate degree has stabilized at about 46 students. The student population is split among the night and day programs.

In addition, Lucent Technology was a great student recruiting center. However, since Lucent is no longer present, a solid recruiting and marketing plan needs to be established in order to increase student enrollment for the Computer Network Certificate. A number of activities are taking place to spread the word about the program. For example, articulation agreements are in place between the Computer Network Certificate program and local high schools. Faculty also visits high schools, attend workshops, present at workshops and run summer content institutes to make the college more visible. However, these activities need to be expanded and supported by additional marketing and financial resources from NECC.

FACULTY:

Currently, the Computer Network Certificate has one full-time CTE faculty member supporting the program. Cross-training/Redeploying the CTE faculty members would help supplement and support the upper-level courses in the certificate. Some of the upper-level courses are being taught by DCE faculty members. A plan needs to be established to reduce the level of dependency on DCE faculty and bring new, current instructors for the Computer Network Certificate into the upper-level courses. Additional professional development needs to be done by faculty to keep up with cutting edge technology.

COURSE SCHEDULING:

Course scheduling for the Computer Network Certificate needs to be reviewed. A balance is required to support both the day and night programs. Also, a plan should be established to increase courses offered online, web-enhanced or as a hybrid of both approaches.

CONTENT REDUNDANCY:

Apparent redundancy in course subject content, this will require additional detailed evaluation. Analysis of Introduction to Information Technology (CTN110) and Introduction to Computer Science (CIS120) needs to be evaluated.

COMPUTER NETWORK AND ADDITIONAL LABS:

The Computer Network Certificate curriculum needs to incorporate additional current job related lab work. By moving subject content from Computer Networks II and III into Computer Networks I and II, this allows the student to learn more about the networking field in a more efficient timeframe. The additional hands-on labs will reflect the current job skills of today's workforce as noted from the U.S. Department of Labor, *and Occupational Outlook Handbook, 2006-07 Edition*.

II. ACTION PLAN

For each identified weakness or area in which improvement is desirable, submit an Action Plan. *(When designing the Action Plan, a suggested plan would include the elements of Process Management using a Plan-Do-Study-Act (PDSA) cycle.) (Note: Add as many of the following tables as necessary.)*

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Computer Network Certificate curriculum needs to incorporate additional current job related lab work	<p>Move some subject content from Networks II (CTN222) into Networks I (CTN201)</p> <p>Change Networks I (CTN201) credits from 3 to 4. Certificate goes to 29 credits</p> <p>Modify CTN201 credit in Academic Advising Handbook: see recommended format for ELECTRONIC TECHNOLOGY: COMPUTER NETWORK SYSTEMS OPTION</p> <p>Move some subject content from Networks III (CTN223) into Networks II (CTN222), no credit change.</p>	<p>TBD</p> <p>Lori Heymans</p>		
<p>Analysis: By moving some subject content from Computer Networks II and III into Computer Networks I and II, this allows the student to learn more about the networking field in a more efficient timeframe. The additional hands-on labs will reflect the current job skills of today's workforce as noted from the U.S. Department of Labor, <i>and Occupational Outlook Handbook, 2006-07 Edition</i>.</p>				

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Need to clarify course sequencing in the Academic Advising Handbook	<p>Add prerequisite/co-requisites course numbers under comments in the Academic Advising Handbook and online course catalog</p> <p>Change Networks I (CTN201) course description to have Intro to Information Technology (CTN110) as a co-requisite.</p>	<p>Lori Heymans</p> <p>Lori Heymans</p>		

Analysis: Adding the prerequisite/co-requisites course numbers under comments in the Academic Advising Handbook allows the student and faculty/advisor, to visually and quickly determine the appropriate courses for each program. At the present time you must flip back and forth in the Academic Advising Handbook several times before determining which prerequisite goes with which course. The CTE department will work with the Academic Advising Center to implement these prerequisite/co-requisites course numbers to the Academic Advising Handbook.

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Course Scheduling	Course scheduling for the Computer Network Certificate needs to be reviewed. Examining curriculum and scheduling to maximize the needs of student demand.	TBD		
<p>Analysis: A balance is required to support both the day and night programs. Also, a plan should be established to increase courses offered online, web-enhanced or as a hybrid of both approaches</p>				

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
<p>Not enough fulltime faculty members to teach upper level courses.</p>	<p>Cross training and /or redeployment of CTE faculty. Professional Development for Faculty for courses in Network Operating Systems (CTN211) and Network current technology.</p>	<p>TBD</p>		
<p>Analysis: In order to support the professional development of faculty and instructors, NECC should provide training workshops and development opportunities in courses for the Computer Network Certificate. In particular, the Network Operating Systems (CTN211) course is usually offered in the night program, and is usually taught by adjunct faculty. Full-time faculty can take advantage of the opportunities and successfully complete and implement the training they receive to support this certificate program. Professional Development detailed in Resources Requested in the Program Review.</p>				

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
Apparent Redundancy in content -requires additional detailed evaluation.	Evaluate Introduction to Information Technology (CTN110), Introduction to Computer Science (CIS120) and Personal Computer Maintenance and Repair (CTN101) for proper fit into the Computer Network Certificate.	Lori Heymans		
Analysis: Detailed analysis of CTN110 and CIS120 needs to be evaluated.				

Problem	Improvement Activity	Person Responsible	Date of Activity	Findings
<p>Faculty Mentors The CTE department should consider implementing a Faculty Mentoring Program to create a link between adjunct, newly-appointed, and tenure-track faculty.</p>	<p>Cross train current full - time faculty.</p> <p>Bring in new DCE faculty.</p> <p>This effort would be a useful way of helping new faculty members adjust to their new environment, retraining adjunct faculty for the Computer Network Certificate, and improving the quality of technical education provided to students.</p>	TBD		
<p>Analysis: The Computer Network Certificate program relies on DCE faculty to deliver course material in the advance courses of the program. A plan needs to include utilizing the DCE members as teachers and mentors for new and/or current faculty who would deliver the advanced course material.</p>				

III. RESOURCES REQUESTED

Complete the following chart, including quotes from vendors, diagrams for requested space, and draft postings as appropriate. (Note: Add rows, increase row height, etc., as needed.)

1. EQUIPMENT				
Item	Justification	Vendor (include contact information)	Cost	Date Needed
MATLAB training	Incorporate MATLAB across the curriculum	<p>Training - Courses</p> <p><i>ML01: MATLAB Fundamentals and Programming Techniques</i></p> <p>MATLAB Fundamentals and Programming Techniques is a two-day course that provides a working introduction to the MATLAB technical computing environment. This course is intended for beginning and intermediate users. CTE has secured funds from the BAYTEC grant to support the action. There is no cost to NECC.</p>	<p>Course Length - 2 days</p> <p>2 faculty</p> <p>Price - \$2,200.00 + software</p>	Fall 2007
ASEE annual conference	This conference is the largest forum for engineering educators. Many four- and two- year institutions are represented. Also, the proceedings have a K-12 engineering division. The latest in class room subject content, creative methods for student engagement and the newest educational technology are presented. Also, many vendors and industry representatives participate in this conference.	Two faculty reimbursement for travel in the spring/summer semester. CTE has secured funds from the PERKINS GRANT to support the action. There is no cost to NECC.	\$3,000	Spring 08

Network system for the networking lab	This will bring out networking lab up to the industry standard with interactive networking possibilities throughout the classroom both row by row and seat by seat. Students will gain knowledge with hands – on labs with “real” time networking devices.	10 Instant Broadband EtherFast Cable/DSL Routers with 8-port Switch.25 15 foot Network Cables 22 Network Interface Cards	\$1,000 \$249.75 \$1231.78 Total \$2481.53	Fall 08
New Horizons Training for Computer Networking	Additional professional development needs to be done by faculty to keep up with cutting edge technology.	Two Faculty members Hands-on Training at local computer training center.	\$2,400	Spring 09

2. PERSONNEL

Position (identify as faculty, staff, etc.)	Justification	Credentials/area of content expertise related to curriculum	Salary	Date Needed
Part-time marketing/PR staff.	Increase the awareness of all the technical programs available at NECC. Establish marketing/recruiting plan for the technical programs			Fall 2007

3. SPACE

Type of space requested	Justification	Description (include square feet, construction requirements, e.g., plumbing, electricity, data ports)	Cost	Date Needed
N/A				