College Mission Statement

Honolulu Community College’s mission is to:

- Serve the community as an affordable, flexible, learning centered, open-door comprehensive Community College that meets the post-secondary educational needs of individuals, businesses, and the community.

- Serve the Pacific Rim as the primary technical training center in areas such as transportation, information technology, education, communications, construction, and public and personal services.

Program Mission Statement

The Computing, Electronics, and Networking Technology program's mission is to serve the community as a learning-centered, open door program that provides technical training to meet the demands of the information technology industry and the needs of the individual. The program is designed to provide the student with a mixture of knowledge and hands-on training with an emphasis on preparing students for entry level employment in the information technology industry.

Part I: Quantitative Indicators for Program Review

See Attached PDF

Part II: Analysis of the Program

- **Instructional faculty who taught in the Fall 2008 / Spring 2009 semesters**
  - Michael Castell, M.S., Information Systems, Hawaii Pacific University. Mike's areas of responsibility in the CENT program include data communications, networking, computer hardware and hardware repair. Mike is A+ certified and is a Cisco Certified Academy Instructor (CCAI/CCNA).
  - Sally Dunan, M.S., Information and Computing Sciences, University of Hawaii. Sally's areas of responsibility in the CENT program include networking, information systems security, and Linux system administration. Sally is a Cisco Certified Academy Instructor (CCAI/CCNA). She holds the CCNA and Certified Information Systems Security Professional (CISSP) certifications.
  - Ken Johnson, DR.P.H., University of Hawaii. Ken is full-time HCC faculty in the Cooperative Education Program and coordinates the CENT Internship and Coop courses each semester.
  - Vern Takebayashi, M.S., University of Hawaii. Vern is full-time faculty for the ICS program and teaches Introduction to Information Systems for the CENT program as part of his full-time teaching load.
  - Aaron Tanaka, M.S., Electrical Engineering, University of Hawaii. Aaron is the CENT program liaison and his areas of responsibility in the CENT program include microcomputer operating systems, network operating systems and network security. Aaron is a Microsoft Certified Trainer and a Cisco Certified Academy Instructor. He holds the following certifications: Certified
Information Systems Security Professional (CISSP), MCT, MCITPRO Server 2008, CCNA and CCNA Security Certified, CCAI, CompTIA A+ and Security +

- **Instructional lecturers who taught in the Fall 2008 / Spring 2009 semesters**
  - Vadim Shteyman

- **Non-instructional (support) faculty or staff for the Fall 2008 / Spring 2009 semesters**
  - Gerald Chen, M.S., Information Systems, Hawaii Pacific University. Gerald provides full-time academic support to the CENT program. Gerald is CCNA certified, a Cisco Academy instructor, and a Microsoft Certified Systems Engineer (MCSE).

- **Program strengths**
  - The strengths of this program include well-qualified faculty, our own full-time academic support staff member, three up-to-date computer lab classrooms, the availability of required technical training through the Pacific Center for Advanced Technology Training (PCATT), a well-designed program, and established articulation agreements with Hawaii Pacific University and UH at West Oahu.
  - The curriculum provides students with state-of-the-art hands-on training on various domains in Information Technology. The majority of CENT course are 3 hours lecture and 3 hours laboratory. The 3 hours of lab per week provide the students with solid hands-on experience working with industry equipment.
  - The curriculum is based upon industry standards and certifications such as Cisco Certified Network Associate (CCNA), CCNA Security, Comptia A+ and Security +, and Microsoft Certified Professional MCP. Although not required students can pursue these industry certifications after completing the associated course work.
  - A majority of CENT courses are linked to industry standards and are taught by instructors who are certified in the area of emphasis. (CCNA, CCNA Security, A+, Security +, MCP, CISSP)
  - The CENT Program has an articulation agreement with Hawaii Pacific University which allows graduates of our A.S. and A.P.C. programs to complete a Bachelor of Arts in System Administration at HPU. (3+1)
  - During the Fall 2008/Spring 2009 academic year the CENT program established an articulation agreement with UH West Oahu (UHWO) which allows graduates of our A.S. and Advanced Professional Certificate (A.P.C.) programs to complete a Bachelor of Applied Science degree in Computing, Electronics, and Networking Technology at UHWO. (3+1) This agreement was initiated in the fall of 2008.
  - The CENT program utilizes three up-to-date computer lab classrooms for teaching a variety of courses including networking, operating systems, system administration, and information systems security.
In addition to the above computer lab classrooms, the CENT program also has a telecommunications lab and classroom which provides equipment required for teaching our data communications course. This includes specialized equipment such as the AX4000 broadband testing system, telecommunications test equipment, and computers which reasonably meet the needs for this course.

We also maintain two labs with a variety of computers and printers used to support computer hardware courses. The laboratories provide students with the opportunity to troubleshoot actual computer systems.

We have an established internship partnership with Lawrence Livermore National Laboratories.

**Program weaknesses**

With the retirement of one faculty member (Paul Jacoby) and the movement of another faculty member to UH West Oahu, (David Pai) the CENT program is understaffed with respect to full-time faculty.

Additional time and funds are needed to give faculty the opportunity to train and keep current with technology and to maintain their certifications.

Because of the expansiveness of the program, (2 year AS, 3rd year APC and 4th year link to a Bachelors of Applied Science Degree in CENT at UH West Oahu) help is needed in managing the administrative duties of the programs.

**Program opportunities**

We are currently in the process of mapping CENT courses to two Committee on National Security Systems (CNSS) standards. This will allow the CENT courseware to be certified as meeting national standards for training in Information Assurance. Students who then complete the associated courses will be able to indicate they have received training that meets the requirements for Information Systems Security (INFOSEC) Professionals.

We continue to work on building and strengthening our recently completed articulation with U.H. West Oahu. Future opportunities exist on partnering becoming a two Committee on National Security Systems Center of Excellence.

We are currently investigating development of a Certificate of Achievement in Networking and Telecommunications. The proposed Certificate of Achievement will strengthen our program offerings in the area of Networking and Telecommunications.

We are currently working with SNR (Networking-Telecommunications Government Contractor), Time Warner Oceanic cable and Hawaiian Telecom for establishing Internship programs.

**Challenges facing our program include:**

Keeping the CENT program current with technology. Because Information Technology is always changing, we must constantly update our program and our courses to current technology.
Faculty also have the responsibility of keeping their knowledge and skills current with technology and maintaining their industry certifications.

- As our full-time teaching loads do not permit adequate time on a regular basis for training and technology updates, our faculty routinely work during the summer months upgrading the curriculum and their skills to meet current industry standards. The contract-based annual teaching assignment reductions (TAR) only permit us to take a one course reduction every third semester.

- **Achievement of Program and Course SLOs**
  - We feel the methods currently used to assess achievement of program and course student learning outcomes provide sufficient information for evaluation of student learning.
  - As students progress through our programs we observe visible growth in their level of technical knowledge, proficiency, and confidence. Additionally, we frequently receive favorable employer feedback regarding the performance of our graduates.
  - An extensive survey of the Networking & Telecommunications Industry was performed during the summer of 2009 (45 participants) as to the necessary skills for entry level workers in the fields of Networking & Telecommunications (Results of the survey are attached)
  - The results of the survey were reviewed by an advisory committee. (Minutes of the meeting is attached)
  - The survey results supported the CENT Program SLOs.

- **How do you know the students are achieving your stated Program SLOs**
  - We assess and collect evidence of student achievement of program learning outcomes using a variety of methods including hands-on student laboratories, student written projects, student group projects, written exams, and hands-on (skills) exams.

- **Evidence of attainment of SLOs**
  - We have attached sample laboratories, written and hands-on exams and well as a course project for the CENT 270 Networking Operating Systems course. These are samples of methods we use to determine if a student has met the course SLOs.

- **Does the program have sufficient resources to promote student learning? Are other resources needed such as personnel, facilities, or equipment? If additional resources are required, what evidence/rationale is there to support this?**
  - With the departure of two of our faculty members at the end of the 2007/2008 academic year, we are currently operating with only three regularly assigned faculty members. Because of slightly low course enrollments during the past two years, we have been able to get by with offering fewer courses. However the past three semesters we have had full enrollment in our
first semester courses. In order to provide adequate course offerings, quality instruction and program support we will need to bring in additional full-time faculty.

- Although our computer lab classrooms are suitable for our current needs, the life cycle of computer systems is about 3-5 years. In a year or two we will again need to upgrade the computers within the laboratories.

- We currently have the minimum equipment resources to run our networking courses. Because of increased enrollments students are beginning to have to share network equipment. (Routers and switches, Firewalls)

- As the Bachelors of Applied Science Program continues to grow, we will need additional resources to support more students in the upper division 300 level technical courses. We were able to purchase 3 multilayer switches and a VOIP system this past year but with increased enrollment we will need more systems to support increased class sizes especially at the advanced level.

- **Inclusion of course SLOs in course syllabi**
  - All of our faculty include the course student learning outcomes in their course syllabi. We ensure that all faculty are reminded of the requirement to do this through regular department meetings.
  
  - As our instructors developed the original course student learning outcomes, they have their own copies of the course outlines that include student learning outcomes. For new instructors, we provide a copy of current course outlines from our files that include the student learning outcomes, so they know the expected content for the course and the established student learning outcomes for the course. Instructors may add additional outcomes to their course syllabi, if they wish to augment the student learning outcomes stated for the course.
  
  - Additionally, this year we have established a department Laulima web site and are currently in the process of migrating curriculum related files, including course outlines and SLOs to this central repository, which is accessible to all members of the CENT program.

- **Safety and facilities issues**
  
  - We are not aware of any outstanding safety issues.
  
  - We currently have a problem with subterranean termites in Building 20, which the Vice Chancellor for Administrative Services is aware of.
  
  - We have identified some issues related to the air conditioning system in Building 13. Depending on how long the CENT program might remain in this building, presumably until the new Science and Technology building is funded and built, it would be desirable to upgrade the air conditioning system in this building to allow for different zones to support different load requirements. For example, we are currently attempting to use one or two rooms as server rooms, which are subject to overheating problems. We also have had frequent problems with the air conditioning being too cold, or too hot, in different rooms in the building and with the system going out periodically.
Part III: Action Plan

- **Tasks/goals completed from previous action plan.**

- Planned tasks and goals for Fall 2008/Spring 2009 academic year included:
  
  - The CENT program is currently evaluating the Advanced Professional Certificate program for compliance and certification with the Committee on National Security Systems (CNSS) standards for the Government Information Assurance Occupations listed below. Sally Dunan has been reviewing the prescribed standards and has been working with Aaron Tanaka, Bill Becker and Mike Castell to perform the course mappings
    - NSTISSI-4011, National Training Standard for Information Systems Security (INFOSEC) Professionals*
    - NSTISSI-4013, National Information Assurance Training Standard For System Administrators (SA)*
  
  Status. Sally Dunan has taken the lead on this project and the mappings are almost completed. The plan is to submit for certification by January 2010 for the year 2010.

  - Develop a Certification of Completion in Networking and Telecommunications
  
  Status. An extensive industry survey was performed in the summer of 2009 on the desired skills for entry level workers in the Networking and Telecommunications industry (45 participants) An advisory committee was established and reviewed the survey results and well as inputted their own ideas. A preliminary draft of a Certificate of Completion in Networking and Telecommunications is in development. A “Request to Plan” has been completed and is being prepared for submission.

  - Introduction of the new CENT 280 Database Systems I course.
  
  Status. CENT 280 Database Systems is currently being taught regularly by Vadim Steyhman a lecturer.

  - Introduction of the new CENT 285 Introduction to Internet Applications/Web Applications course.

  Status. Vern Takabayashi is preparing to teach this course in the Spring 2010 for the first time.

  - Introduction of the new CENT 410 Project Management course as part of the B.A.S. in CENT program at UH West Oahu. David Pai is responsible for developing, teaching and maintaining this course.

  Status. CENT 410 is currently being offered for the first time at UH West Oahu Fall 2009.
Additional tasks/goals for the Fall 2009 / Spring 2010 academic year:

Program upgrades

- To align with the CNSS mappings the CENT program is currently in development of a Certificate of Achievement in Information Assurance based upon the CNSS standards.
- A “Request to Plan” for a Certificate of Achievement in Information Assurance is planned for submission to curriculum committees during the spring of 2010.
- A Request To Plan for a Certificate in Completion in Networking and Telecommunications is planned for submission to curriculum committees during the spring of 2010.

Course updates:

- Aaron Tanaka is currently updating CENT 130 Microcomputer Operating Systems course align with A+ standards and to incorporate a module on the Macintosh OS.
- Sally Dunan is working on CENT 228 to incorporate LINUX and TCP/IP fundamentals.
- Aaron Tanaka is working on developing an upper division course in Computer System Virtualization.

Classroom and course support upgrades: We have identified the following equipment upgrades that would improve support for CENT classrooms and courses.

1. One rack-mountable server would provide virtualization support for CENT courses in advanced networking, system administration and security and allow 24-hour access for students working on lab assignments for these courses. This would reduce requirements for larger classroom hard drives and reduce conflicts with requirements for other courses to use student classroom computers. Estimated cost: $10,000

2. Memory upgrades for existing classroom computers would improve performance for classroom labs and online exams. Estimated cost: $1625

3. Fiberoptic installation kits would provide support for adding training related to termination and splicing of fiberoptic cabling to our existing CENT 231 Data Communications course and a possible new course focused on cabling. Estimated cost: $7600

4. Additional Voice over IP Phones would improve support for teaching VoIP in CENT 231 Data Communications and other advanced networking courses. Estimated cost: $1400

5. Acquisition of HWIC-2T network cards for use in our Cisco 2800 series routers would enable us to set aside the older WIC-2T cards currently in use to be used as spare networking cards for our older Cisco 2600 series routers. Cisco is no longer manufacturing the older WIC-2T cards, so having spare WIC-2T cards to support the 2600 series routers will extend the usable lifetime of the 2600 series routers. Estimated cost: $6750

6. Acquisition of one Spirent Test Center would provide support for advanced labs in CENT 231 Data Communications and other networking courses. Estimated cost: $22,000
Part IV: Resource Implications (physical, human, financial)

- **Budgetary impacts for carrying out this action plan**
  - CNSS mappings: no additional funds projected necessary as program works with existing courses although funds would help give assigned time to faculty to assist in preparation for certification and course mappings.
  - Network and Telecommunications Certificate of Achievement: Previous funding for program development and basic equipment was obtained through a Perkins grant.
  - Equipment procurement: Cost estimates for the proposed equipment upgrades are provided above.

- **Do any of your action plan items require integration into the strategic plan? (If so, have you notified your division chair / Dean of this action?)**
  - The following action items need to be integrated into the Strategic Plan.
    - Improvements to air conditioning system for Building 13. This is a facilities issue that the Vice Chancellor for Administrative Services would coordinate.

Part V: Strategic Planning Items

- **Does your program have any funding requests on the current strategic plan (equipment, positions, etc.)? If yes, please write an explanation on how your program review report supports the need to fund the program’s strategic plan request.**
  - We currently have no funding requests on the Strategic Plan.