Computer Information Systems (CIS) Program Review 2011

Education:

The Computer Information System (CIS) offers courses that sequence a student through computer skills for software applications and information management necessary to securing work in the network, technical support/technician or related fields. The program also offers classes to those wishing to update skills in these evolving technical fields. The CIS program is an official Cisco Networking Academy that teaches the Cisco Certified Network Association (CCNA) curriculum in four networking courses. Program goals include applications for each student to:

1. Install, upgrade, and maintain network systems
2. Troubleshoot and repair hardware and software issues
3. Create computer programs and web pages
4. Develop and maintain database management systems
5. Teach skills necessary to developing projects

Network (Cisco) curriculum includes courses that provide classroom/laboratory experiences in current and emerging technology that replicate on-the-job learning within the lab under instructor supervision. Instruction includes network terminology and protocols, network standards, network devices, Ethernet, and internet protocol addressing.

Further study in Network 2 immerses students in wide area networks (WANs), transmission control protocol/internet protocol (TCP/IP), IP addressing, routers, router configuration, routing protocols, and access control lists (ACLs).

Network 3 includes reviewing Open System Interconnection (OSI) and Reference Model and OSI layer functions. Study in classroom and field applications develop skills in variable-length subnet masking (VLSM), local area network (LAN), switching, virtual LANs (VLANs), LAN design, interior gateway routing protocol (IGRP), and network management. Particular emphasis challenges students to apply skills learned in prior semesters demonstrating the ability to explain how and why to employ a chosen strategy.

Network 4 advances students into point-to-point protocols (PPPs), network address translation (NAT), integrated services digital network (ISDN), dial-on-demand routing (DDR), frame relays and network management. In a final analysis students prepare for the CCNA exam with the option to prepare for the Network+ Certification exam. The final exam includes studies from Network 1 – 3.

In addition students take courses in database structure, project management, programming, web page programming, computer hardware, desktop operating systems, network server, program capstone, and internship.

Assessment of student achievement through formative and summative means utilizing both internal and external measures include: coursework quizzes and exams through common test banks used to measure learning of course objectives across all sections, projects demonstrating cumulative learning, portfolio development at program level in CIS capstone course, Skills Assessment Manager (SAM) pretest/post test for computer software, CISCO academy CCNA exams for four courses, Work Keys for AAS degrees and certificates, Technical Skills Assessment (TSA) Network 4 final and skills assessment, CAAP for AA degrees, and internship with supervised work experience.

CIS meetings, advisory board, student and faculty evaluations, and faculty-driven assessment drive all course/curriculum/program achievement allowing updates that enhance student learning in this competitive field.

Advisory Board:

The CIS advisory board--consisting of 20 members of the community who work in IT or related fields--assembles to offer and discuss possibilities to target for the yearly enhancement grants. The advisory board meets twice a year: once in the fall and once in the spring. Hardware upgrades are necessary every three years to ensure students work with updated versions of equipment used in the field. This advisory board recommended purchasing and using VMWare in the labs to give students experience in the virtual world. CIS currently has two VM servers, two VM data storage units, and a recently purchased VMSphere.

Equipment:

All equipment is Cisco certified for network curriculum course work and is updated or repaired as necessary through a Cisco maintenance agreement allowing for overnight service calls. Presently there are three computer labs equipped with 63 computers, 5 Mac laptops, 5 Windows laptops, 2 instructor PC Tablets, 3 Cisco router/switch bundles, 2 data storage units for the VM environment, and operate with Microsoft Windows 7/Office Suite 2010 with a capacity of 20 students. Labs make up 50% of the course requirements for Network 2, 3, and 4, Network Server 1 and 2, Operating Systems, and Microcomputer Operations. The computer labs support numerous other programs on campus as well.

Staffing:

The CIS department is staffed with two full time instructors, one part time instructor, and four adjunct instructors—three of which work in the field. Field instructors offer the added dimension of updated expertise as well as job site demands that transfer to students through hands-on practical learning applications.

Areas of Concern:

1. Increased competition from other institutions (St. Charles Community College, Sanford Brown, Linn State, 2 year tech schools)

Two areas to focus upon would be recruiting from high schools and referrals from the college advisors and colleagues channeling potential students into the program who might be interested

* + 1. Need for creating an assessment tool measuring a candidate for the program for entry level skills and imparting some of what is expected in this course of study to the recruits—may include a hands on exam to allow a student to demonstrate practical “street-sense” knowledge of computers
    2. Need for distributing updated information about this CIS program to students enrolled in related courses (computer, web design, graphics, etc.)
    3. Need for communication with high school instructors/counselors for cooperative effort to send engaged students who exhibit qualifications/interest for this program (perhaps send posters with a set up a QR code included allowing access to the latest updated information about this program)

1. Address attrition rate with measures that would provide more assistance and time for troubled students to absorb the knowledge necessary to develop skills:
   * 1. Augment tutored students with meeting times for remediation by organizing them into study groups (students who may show potential but need more time to learn basic or advanced skills). The time-on-task would allow students as a group to work collaboratively and address a tutor with questions while working on projects, etc.
     2. Augment both tutoring and remediation utilizing Moodle for online lessons, discussion forums, chat, etc. allowing all students in all sections to pool information, techniques, or methods learned in order to master tasks.

The success rate for graduates stands as a testimonial to what a student learns upon completion of this program of study. Identifying students who may show interest in this field and offering more varied ways to help those who may feel as though they are in it over their heads are fundamental to growth and success in the CIS program. Designing methods to recruit and creating measures to assess student performance will provide the foundation for further discussion and development of these measures. The CIS program graduated 12 students from the 2010-11 class which demonstrates the success of the instruction and structure that built the program.