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Collin County Community College District (Collin) student Mary Hawkins in the convergence lab at Preston Ridge Campus in Frisco. photo provided by Shawn Stewart

Helping to Create Simple Yet Secure Computer Networks

By Shawn Stewart

IN ORDER FOR THE WWW to become less “wild, wild, west” and more user-friendly, two things must happen: the Internet must, simultaneously become safer to use, yet more simple to use. For businesses that depend upon electronic communication or commerce, this is a very complicated, yet critical, balance to achieve: electronic safety plus technological simplicity.

Cybersecurity, in its simplest form, is the protection of data systems and networks that are connected to the Internet. But the official definition, according to Congress and the Department of Homeland Security (DHS), is a little more broad, taking into account non-Internet communication systems as well. According to DHS, cybersecurity is “the prevention of damage to, the protection of, and the restoration of computers, electronic communications systems, electronic communication services, wire communication, and electronic communication, including information contained therein, to ensure its availability, integrity, authentication,

confidentiality and nonrepudiation.”

To help locally, Collin County Community College District (Collin) now offers degrees and certificate programs in both cybersecurity and convergence technology through its Division of Engineering and Emerging Technologies.

Last year, more than 50 million Americans had their Social Security numbers, credit card numbers or other personal data exposed to Internet thieves. And it was mostly the result of large companies failing to guard their corporate databanks. In fact, Newsweek magazine listed 10 international companies that failed to protect their customers’ information – information that was stolen by international crime gangs and sold on digital black markets all around the world.

As a cybersecurity student at Collin and as a CCNA (Cisco) Lab Assistant at the college’s Central Park Campus, Nathan Klick is one of the new breed of high-tech, cybersecurity guards. None of these lapses in security are news to him.

“Hackers and crooks are always evolving, coming up with new ways to get your personal information,” he said.

Appropriately named for a computer guy, Mr. Klick has been programming computers almost since before he could walk – C++ may have been his first language.

His original goal was to earn a degree and then transfer to a private technical training school. However, after considering all the options, he decided to pursue a degree in computer network technology, which would transfer to The University of Texas at Dallas (UTD).

Students like Mr. Klick may receive an associate of applied science (AAS) degree in cybersecurity by taking such classes as wireless area networks (WANs), firewalls and computer system forensics. Or they may receive an AAS degree in convergence technology by taking such classes as Voice over Internet Protocol (VoIP), wireless telephony systems and enterprise networks. Students majoring in either of these areas of study may look forward to careers as network administrators, security analysts, wireless specialists or home technology integrators.

“Last year, more than 50 million Americans had their SSN, credit card numbers or other personal data exposed to internet thieves.”

This young cybersecurity guard has been approached by several companies to start work immediately, thanks to the numerous Microsoft and Cisco certificates he earned at Collin, but he

will wait until he completes his associates degrees and a Bachelor of Science at UTD.

“The industry almost always demands that you have a degree in computer science or in an engineering-related field, and then some certifications to top it off. For any network security analyst position or for any network administrator position, that is almost the de-facto standard,” he said.

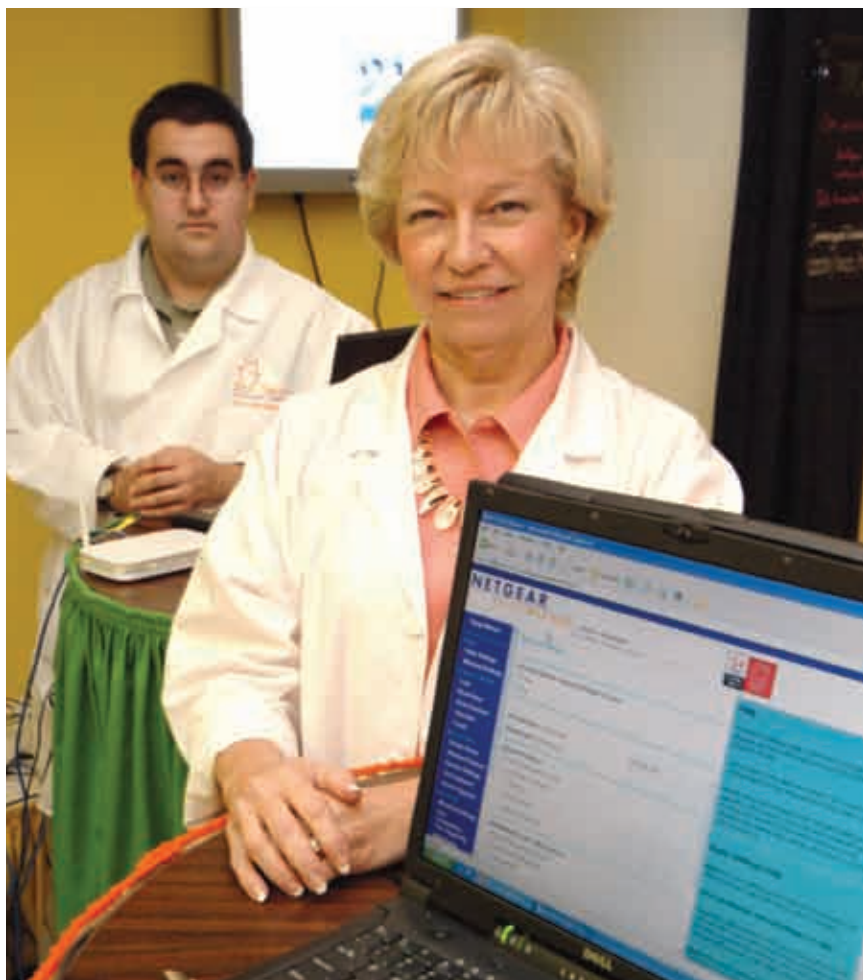
For that reason, the AAS in Information Systems Cybersecurity degree may be worth its weight in gold.

The Texas Workforce Commission, in their report “Jobs in the 21st Century,” projects that careers in the computer and data processing services area, which includes cybersecurity, will realize some of the highest growth rates, over 55 percent, among all Texas industries for the years 2000-2010. Furthermore, the statewide number of jobs for computer support specialists is expected to grow by 85.3 percent, adding 3,515 jobs annually or 33,490 jobs total, during the same ten-year period. Dallas will add about 8,330 jobs during the same time. In 2001, the average annual salary for these professionals was \$44,810.

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Cybersecurity experts are in demand by many industries, including those in banking, defense, e-commerce, finance, healthcare, education and telecommunications; anywhere there is communication, intellectual property, scientific research, money or personal information being transmitted in electronic form, cybersecurity experts will be needed to guard the gates.

Dallas/Fort Worth has many companies which fit this profile: cable companies offering home Internet service; hospitals and doctors’



Collin County Community College District students Nathan Klick and Lea Humphreys in the convergence lab at Preston Ridge Campus in Frisco. photo provided by Shawn Stewart

offices, networked HMOs, insurance companies; community banks, savings institutions, credit unions, stock brokerages, title companies; not to mention computer networking systems dealers and companies, web designers, ISPs and software developers.

While cybersecurity makes the Internet safer to use, convergence technology keeps it simple to use.

Convergence is the sharing of voice, video and data information across shared, flexible networks. The obvious examples are telephone companies getting into the Internet business, or Internet companies offering phone service. But convergence can also mean the merging together of hardware or software solutions from multiple companies so that they work together seamlessly. Any of this can be referred to as “convergent technology.”

With a Bachelor of Science degree in hand, Lea Humphreys was a computer programmer and metrics analyst for

years in the telecom industry before the Internet “bubble” burst. That is when she decided to return to college and focus more on hardware-related applications as a skill-set.

Studying convergence technology, Ms. Humphreys is taking a “blended class,” which combines onsite coursework with distance technology so that, on any given day, Ms. Humphreys might be sitting in the classroom, or she might be sitting at home attending a lecture via the web.

“[The blended classes] are quite a change from the classic style class,” she said. “It certainly makes the most effective use of the time I have available and offers flexibility. I like being able to attend class on an alternate day or via a web conference rather than in person.”

Ms. Humphreys sees convergence technology as a pathway to the future.

“I am planning to start my own business in home technology integration/automation, geared toward

individual consumers and potentially small businesses,” she said. “I have always been interested in computers and automation of routine tasks, such as those seen in *The Jetsons* cartoon series or the kitchen of the future in the Doris Day movie *Glass Bottom Boat*.”

Collin’s Home Technology Integration class teaches students how to integrate and maintain various home technology subsystems, including lights, appliances, security and surveillance systems, home computer networks, audio/video entertainment and communication systems, and even interactive house wiring, so that electrical outlets in one room can talk to electrical outlets in another room.

“I think there is a huge potential market in retrofit of existing homes and development of new construction with technology integration,” Ms. Humphreys said. “This is the tip of the iceberg.”

Mary Hawkins has gigabytes of ambition. When she graduates from Collin in two years, she hopes to walk away with 12 certificates including A+, CCNA, MCSA and Convergence+ and two AAS degrees in computer science – one emphasizing convergence technology and the other in computer networking technology.

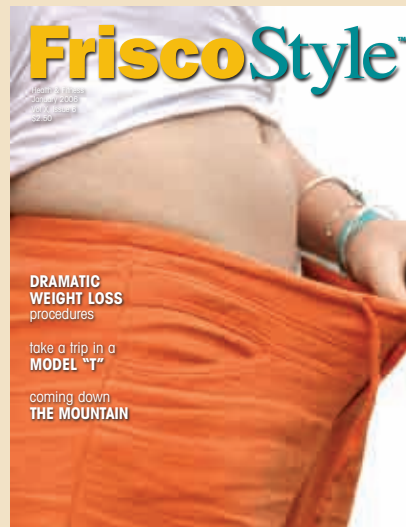
As a nontraditional student returning to school after many years, Ms. Hawkins has thrown herself head over heels into the field of convergence technology.

She took both of her Cisco classes as daily flex entry classes, giving her the flexibility of taking classes either on- or off-campus and taking them at her own pace, finishing the class whenever she was done with the coursework. She finished her most recent Cisco class a week early and was able to focus on the final for her VoIP class.

Now, as an older, wiser student and as a single mother paying her own way through college, Ms. Hawkins is very familiar with the importance of a good education.

“It’s always good to have a backup,” she advises. “You never know what kind of turn your life is going to take. It’s a good feeling to know that you can take care of yourself.”

Shawn Stewart is a writer in public relations at Collin County Community College.

The logo for Frisco Style Magazine features a red square on the left containing the letters 'FSM' in a white, stylized, cursive font. To the right of the square, the word 'frisco' is written in a black, lowercase, cursive font. Below 'frisco', the words 'STYLE' and 'MAGAZINE' are stacked in a large, black, uppercase, serif font.

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