TENNESSEE HIGHER EDUCATION COMMISSION

PROGRAM DESCRIPTION

The University of Tennessee, Chattanooga (UTC) proposes an Information Technology in Cybersecurity, Bachelor of Applied Science (BAS). The proposed program builds from and augments UTC's current Computer Science, BS concentration in cybersecurity. The proposed Information Technology in Cybersecurity program is a cohort-based program that has been specifically developed for adult learners and transfer students, who have already completed their associate degree, and would provide an accelerated one-year curriculum. The program includes an internship to maximize student learning opportunities which will provide opportunities for the direct application of class concepts into workplace settings. Students enrolled in the program will be prepared to sit for high-level industry certifications such as Certified Information System Security Professional (CISSP), Certified Information Security Manager (CISM), Certified Information Systems Auditor (CISA), and NIST Cybersecurity Framework (NCSF).

The program would provide opportunities for graduates to pursue managerial level positions in several IT-related fields that have significant employee shortages, including computer programmers, computer user support specialists, software developers, computer systems analysts, network and computer systems administrators, database administrators, computer and information research scientists, information security analysts, and computer hardware engineers.

INSTITUTIONAL GOVERNING BOARD APPROVAL

The proposed Information Technology in Cybersecurity, Bachelor of Applied Science program is scheduled for review by the University of Tennessee Board of Trustees on October 27-28, 2022.

PROPOSED IMPLEMENTATION DATE

January 2023 – UTC is confident they will be able to quickly implement the proposed program because internship sites are established, and employers are eager for interns. Additionally, student success advisors are ready to start advising potential students, and the program director and program faculty are ready to execute the program. In addition, a robust marketing plan has been developed which includes tailored outreach to community college students, working adults in the Chattanooga area, and broad marketing through UTC's social media and local advertising venues.

ALIGNMENT WITH STATE MASTER PLAN AND INSTITUTIONAL MISSION/STRATEGIC PLAN

The proposed Information Technology in Cybersecurity, Bachelor of Applied Science program aligns with the State's Master Plan for Higher Education by providing students opportunities to receive high-quality training that is oriented toward in-demand cybersecurity workforce needs while also increasing educational attainment throughout the state. Faculty and students will collaborate with local industry partners by creating a new educational path including an intensive internship program that will impact the local community, and provide graduates proficient in programming, texting, and maintaining computer systems.

The proposed program aligns closely with UTC's strategic goals by developing cutting-edge academic offerings, building and participating in strategic partnerships, and becoming deeply involved in the community. Further, the proposed program provides students with meaningful learning experiences that blend academic coursework with internships and offers an alternative pathway to adult learners and transfer students to earn an expedited degree while encountering critical learning experiences. As a result, UTC will develop academic and industry working partnerships in a dynamic and growing industry and secure private funding sources to augment student success in the program.

CURRICULUM

The curriculum for the proposed Information Technology in Cybersecurity, Bachelor of Applied Science program will require 120 credit hours which includes general education courses, basic math and science courses, and 60 credits of major courses.

The program learning objectives are structured to incorporate intensive experiential learning and provide students with opportunities to practice the knowledge they acquire in their courses and gain hands-on experience in the field. The specific learning outcomes will ensure students are able to:

- o Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- o Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
- o Communicate effectively in a variety of professional contexts.
- o Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
- o Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
- o Apply security principles and practices to maintain operations in the presence of risks and threats.

The proposed Information Technology in Cybersecurity, Bachelor of Applied Science will require the creation of ten new courses.

PROGRAM PRODUCTIVITY

The accelerated design of the program means that students can complete the program in one academic year. Students will take courses in cohorts and progress through the curriculum in a pre-determined path. In the first year and second year, two cohorts of 15 students are anticipated. A third cohort will be added in year three, and cohort sizes will be increased to 20 students, for a total of 60 admitted students per year. Given the accelerated design of the program, graduates are anticipated in the first calendar year after program approval.

	2023	2024	2025	2026	2027
Enrollment	30	30	60	60	60
Graduates	11	22	26	45	45

Note: Projections are listed by Calendar Year.

PROGRAM DUPLICATION

In Tennessee, there are currently two standalone cybersecurity programs at public universities (University of Tennessee, Martin and University of Tennessee, Southern) and three at private universities (Freed Hardeman University, Lipscomb University, and Union University). The proposed program is substantially different from the existing programs both in its accelerated structure, internship placement, and curricular focus on information technology with an emphasis on cybersecurity.

EXTERNAL JUDGEMENT

An external review of the proposed program was conducted during a virtual site visit on March 10, 2022, by Dr. James Walden, Professor and Director of Cybersecurity at Northern Kentucky University. The site visit included meetings with campus administrators, faculty, prospective students, and industry partners.

Dr. Walden recommended the approval of UTC's proposed Information Technology in Cybersecurity, Bachelor of Applied Science and stated, "UTC is ready to implement the proposed program, as the university already has skilled cybersecurity faculty, National Security Agency (NSA) certification as a National Center of Academic Excellence in Cybersecurity (NCAE-C), and a track record of rapid growth in cybersecurity related programs." Dr. Walden concludes, "UTC has the capabilities, experience, and resources to offer the proposed BAS-ITCyS program." And he suggests that the proposed program "will attract different types of students than are served by UTC's current cybersecurity program."

STUDENT DEMAND

One hundred seventy-six students at Chattanooga State Community College (ChSCC) and Columbia State Community College (CoSCC) were surveyed. Seventy-four percent of the 99 ChSCC students surveyed and 80 percent of the 99 CoSCC students expressed interest in pursuing a transfer program designed like the proposed program.

OPPORTUNITIES FOR PROGRAM GRADUATES

The proposed program would address a widespread supply and demand mismatch around Cybersecurity skills for IT professionals, and would provide opportunities for program graduates to find managerial level employment in information technology related job clusters (computer programmers, computer user support specialists, software developers, computer systems analysts, network and computer systems administrators, database administrators, computer and information research scientists, information security analysts, and computer hardware engineers). Specifically, a majority of jobs in these career clusters identify cybersecurity as an essential hard skill, while only 21 percent of workforce employment profiles in the greater Chattanooga area are able to demonstrate cybersecurity skills.

Occupations requiring training in cybersecurity are projected to grow 40 percent in the Chattanooga area through 2026. Further, the 2021 THEC Academic Supply and Occupational Demand report designates Information Security Analyst as a high-demand occupation for the Southeast Tennessee. Economic Modeling Specialists Inc. (EMSI) data project that job growth in the six occupational areas mentioned above will grow 10

percent in Tennessee through 2026, and 14 percent through 2030. These same positions are expected to grow at a faster rate in the Chattanooga area – 15 percent through 2026 and 19 percent through 2030.

Letters of support for the proposed program were received from Miller Industries, the Tennessee Valley Authority, US Xpress Inc., Signal Energy, Playcore Inc., CBL Properties, McKee Foods, EPB, the UTC College of Engineering and Computer Science, and the Enterprise Center. In addition, letters committing financial support for student internships were provided by Miller Industries, the Tennessee Valley Authority, US Xpress, and Playcore. Companies who agree to house interns also agree to donate $5,000 per student to the program.

INSTITUTIONAL CAPACITY TO DELIVER THE PROGRAM

The proposed Information Technology in Cybersecurity, Bachelor of Applied Science will be housed in department of Computer Science and Engineering of the College of Engineering and Computer Science. The program requires an investment of $100,000 to create a dedicated teaching lab with new computers and servers and $10,000 for new library resources. Six faculty members will be hired to support the program. In addition, a full-time program director, a full-time recruiting staff member, a part-time outreach liaison, an administrative assistant, and a tech support staff member will be hired to support the program.

ASSESSMENT AND POST-APPROVAL MONITORING

An annual performance review of the proposed program will be conducted for the first five years following program approval. The review will be based on benchmarks established in the approved proposal. At the end of this period, the campus, institutional governing board, and THEC staff will perform a summative evaluation. The benchmarks include, but are not limited to, enrollment and graduation, program cost, progress toward accreditation, and other metrics set by the institution and staff. If benchmarks are not met during the monitoring period, the Commission may recommend that the institutional governing board terminate the program. If additional time is needed and requested by the institutional governing board, the Commission may choose to extend the monitoring period.

FINANCIAL PROJECTIONS

Tennessee Higher Education Commission
Appendix A: THEC Financial Projections
University of Tennessee Chattanooga
BAS Information Technology in Cybersecurity

Seven-year projections are required for doctoral programs.
Five-year projections are required for baccalaureate and Master's degree programs
Three-year projections are required for associate degrees and undergraduate certificates.
Projections should include cost of living increases per year.
Planning year projections are not required but should be included when appropriate.

	Planning Year	Year 1	Year 2	Year 3	Year 4	Year 5
I. Expenditures	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
A. One-time Expenditures						
New/Renovated Space[1]	$ -	$ -	$ -	$ -	$ -	$ -
Equipment	-	50,000	-	50,000	-	-
Library	-	10,000		-	-	-
Consultants	-	-	-	-	-	-
Travel	-	-	-	-	-	-
Other (External Reviewer)	1,000	-	-	-	-	-
Sub-Total One-time	$ 1,000	$ 60,000	$ -	$ 50,000	$ -	$ -
B. Recurring Expenditures						
Personnel						
Administration						
Salary	$ -			$ 60,000	$ 122,400	$ 124,848
Benefits	-			24,600	50,184	51,188
Sub-Total Administration	$ -	$ -	$ -	$ 84,600	$ 172,584	$ 176,036
Faculty						
Salary	$ -	$ 80,000	$ 403,200	$ 491,264	$ 501,089	$ 511,111
Benefits	-	32,800	165,312	201,418	205,447	209,556
Sub-Total Faculty	$ -	$ 112,800	$ 568,512	$ 692,682	$ 706,536	$ 720,667
Support Staff						
Salary	$ -	$ 100,000	$ 146,100	$ 149,022	$ 152,002	$ 155,042
Benefits	-	41,000	59,901	61,099	62,321	63,567
Sub-Total Support Staff	$ -	$ 141,000	$ 206,001	$ 210,121	$ 214,323	$ 218,610
Graduate Assistants						
Salary	$ -	$ -	$ -	$ -	$ -	$ -
Benefits	-	-	-	-	-	-
Tuition and Fees* (See Below)	-	-	-	-	-	-
Sub-Total Graduate Assistants	$ -	$ -	$ -	$ -	$ -	$ -
Operating						
Travel	$ -	$ 6,000	$ 10,000	$ 20,000	$ 20,000	$ 20,000
Equipment	-	-	-	-	-	-
Printing	-	-	-	-	-	-
Other	-	35,000	35,000	56,000	56,000	56,000
Sub-Total Operating	$ -	$ 41,000	$ 45,000	$ 76,000	$ 76,000	$ 76,000
Total Recurring	$ -	$ 294,800	$ 819,513	$ 1,063,403	$ 1,169,443	$ 1,191,312
TOTAL EXPENDITURES (A + B)	$ 1,000	$ 354,800	$ 819,513	$ 1,113,403	$ 1,169,443	$ 1,191,312

*If tuition and fees for Graduate Assistants are included, please provide the following information.

Base Tuition and Fees Rate	$ -		$ -	$ -	$ -	$ -
Number of Graduate Assistants	-		-	-	-	-

	Planning Year	Year 1	Year 2	Year 3	Year 4	Year 5
II. Revenue						
Tuition and Fees[2]	-	107,640	519,364	649,424	1,220,303	1,273,266
Institutional Reallocations[3]	1,000	172,160	150,149	288,979	(350,860)	(381,954)
Federal Grants[4]	-	-	-	-	-	-
Private Grants or Gifts[5]	-	75,000	150,000	175,000	300,000	300,000
Other[6]	-	-	-	-	-	-
BALANCED BUDGET LINE	$ 1,000	$ 354,800	$ 819,513	$ 1,113,403	$ 1,169,443	$ 1,191,312

Notes:

2 Faculty (spring), 1 Recruiting Staff, 1 Part-time Outreach Liason, 1 Admin Asst (spring) and 1 Tech Support (spring) Year 22-23

4 Faculty Hired Year 23-24 (2 in fall and 2 in spring)

Program Director Hired Year 24-25 (spring)

Salary projections include a 2% raise each year

(1) Provide the funding source(s) for the new or renovated space.

(2) In what year is tuition and fee revenue expected to be generated? Tuition and fees include maintenance fees, out-of-state tuition, and any applicable earmarked fees for the program. Explain any differential fees.

First cohort of students start spring of 2023.

There is a differential fee of $59 and program fee of $100 per credit hour.

Tuition projections include a 2% increase each year.

(3) Identify the source(s) of the institutional reallocations, and grant matching requirements if applicable.

Source of institutional reallocations is funds in the College of Engineering.

(4) Provide the source(s) of the Federal Grant including the granting department and CFDA(Catalog of Federal Domestic Assistance) numbe

(5) Provide the name of the organization(s) or individual(s) providing grant(s) or gift(s).

Each partnering company will contribute $5,000 per student to the program annually for the apprenticeship portion

(6) Provide information regarding other sources of the funding.