TENNESSEE HIGHER EDUCATION COMMISSION

REGULAR CALENDAR ITEM: III.B.

MEETING DATE: August 17, 2023

SUBJECT:
Expedited New Academic Program
University of Tennessee, Knoxville
Business Cybersecurity, Master of Science (MSBC)
CIP Code: 11.1003 (Computer and Information Systems
Security/Auditing/Information Assurance)

ITEM TYPE: Action

ACTION RECOMMENDATION: Approval

PROGRAM DESCRIPTION

The University of Tennessee, Knoxville (UTK) proposes a 30-credit hour, online Master of Science in Business Cybersecurity (MSBC) which will provide well-rounded training in both the business context and technical aspects of the cybersecurity environment. A full-time student can complete the program in 10-12 months, and the program is also built to accommodate working students who can pursue the degree at their own pace.

Students who complete the program will be prepared for employment in a wide range of non-entry level jobs in the growing cybersecurity field. The training is designed at the intersection of business management and cybersecurity systems and meets an industry identified need for professionals who can utilize technology and business knowledge to effectively evaluate, communicate, and provide direction to businesses regarding cybersecurity policies, procedures, and operations. The proposed program will leverage industry partnerships to provide guest lectures by business professionals, real-world case studies, and sample industry generated data in order to ensure that students are job ready at graduation. The program exists in partnership with Noodle, an Online Program Management (OPM) provider, which will provide marketing, instructional design, and student support.

INSTITUTIONAL GOVERNING BOARD APPROVAL

The proposed Business Cybersecurity, MSBC program was approved by the University of Tennessee System Board of Trustees on June 29-30, 2023.

PROPOSED IMPLEMENTATION DATE

Spring 2024

ALIGNMENT WITH STATE MASTER PLAN AND INSTITUTIONAL MISSION/STRATEGIC PLAN

The proposed Business Cybersecurity, MSBC aligns with the focus of the Tennessee Higher Education Master Plan by responding to calls to align higher education program offerings with the need of industry, and to prepare professionals suited to meet the states workforce needs over the next decade. The proposed program will meet a distinct need for qualified employees in a growing, high-demand industry with a current distinct lack of supply. Online delivery increases access to the program, specifically to working

professionals looking to advance their careers. The program also meets the priority areas identified in the Tennessee Higher Education Master Plan Supplement. Student Success is prioritized by using an intentionally flexible structure and incorporating robust advising and student success coaching. Family prosperity and affordability is assured by keeping tuition affordable in comparison to other Tennessee institutions that offer programs of comparable quality and through offering ample scholarships to students. Finally, the program addresses the Future of Work by providing targeted training with a demonstrated workforce need.

The proposed program also aligns with each of the five goals associated with the University of Tennessee, Knoxville's strategic mission by:

1. *Cultivating the Volunteer Experience:* The proposed program will provide educational opportunities for both traditional students and working professional to obtain a high-quality degree that is accessible to communities across Tennessee.
2. *Conducting Research that Makes Life and Lives Better:* The proposed program will contribute real-life, relevant cybersecurity research and present opportunities for synergies with industry partners to develop new data management and analytic skills.
3. *Ensuring a Culture Where Vol is a Verb:* The proposed program will target a diverse group of students with the intent to make the program accessible and inclusive while ensuring a curriculum and delivery mechanism that will promote community and connection between students, industry partners, and faculty.
4. *Making Ourselves Nimble and Adaptive:* The proposed program will concentrate on emerging topics and technologies as they develop and will evolve with the needs of industry.
5. *Embodying the Modern R1, Land-Grant University:* The proposed program will embody the spirit of the land-grant university by providing an innovative, accessible, high-quality degree program.

CURRICULUM

The proposed online Business Cybersecurity, MSBC program will require students to complete ten courses, resulting in 30 credit hours of instruction. The online design and implementation of the program will be facilitated by a contract with Noodle, an Online Program Management (OPM) provider, that UTK has an established relationship with. Noodle will provide instructional design services, program marketing, and student support.

Upon completion of the program, students will be able to demonstrate knowledge across four areas that encompass the foundational knowledge of cybersecurity impact and implications for business:

- Cybersecurity foundational knowledge:
    - Demonstrate an understanding of the impacts of cybersecurity on the business environment.
    - Demonstrate awareness and implications of regulations and external factors associated with organizational cybersecurity.
- Cybersecurity management and operations:
    - Demonstrate understanding of policy, operations, and management of organizational cybersecurity business process.
- Cybersecurity technologies and methods:
    - Demonstrate an understanding of how key technologies are leveraged for the design, implementation, and protection of organizational assets.
    - Demonstrate an understanding of how key cybersecurity technologies and methods will impact an organizations business processes and strategy.
- Cybersecurity knowledge and skills application:

- o Demonstrate the ability to apply cybersecurity skills and knowledge to real-world business scenarios.
- o Demonstrate the ability to formulate, update, and communicate organizational cybersecurity strategies and policies to various audiences.

All the courses required for this program will be new courses. The first five courses will be completed by Fall 2023 and the remaining five courses will be completed by Summer 2024.

PROGRAM PRODUCTIVITY

The proposed Business Cybersecurity, MSBC projects an initial enrollment of eighteen students increasing to 84 students by year five and projects graduates beginning in year three and increasing to 61 graduates in year five. The majority of the students who enroll in the proposed program are expected to be enrolled part-time.

	2024	**2025**	**2026**	**2027**	**2028**
Enrollment	18	46	60	75	84
Graduates	--	--	25	48	61

PROGRAM DUPLICATION

Currently, no Tennessee public institution offers a freestanding master's degree in Business Cybersecurity. Though, graduate training in cybersecurity is offered at several public institutions in the form of a concentration in another master's degree or graduate certificate. For example, East Tennessee State University and Middle Tennessee State University both offer a cybersecurity concentration in Information Systems, MS. Austin Peay State University, Tennessee State University, the University of Tennessee, Chattanooga, and the University of Tennessee, Knoxville all has a cybersecurity concentration within their Computer Science, MS. Furthermore, Austin Peay State University offers a graduate certificate in Information Assurance and the University of Memphis offers graduate certificates in both Business Information Assurance and Cybersecurity and Information Assurance.

EXTERNAL JUDGMENT

An external review of the proposed program was conducted during a virtual site visit on March 21, 2023, by Dr. Gregory D. Moody, Lee Professor of Information Systems and Director of the MS Cybersecurity Program at the University of Nevada, Las Vegas. The site visit included meetings with campus administrators, faculty, prospective students, and community partners.

Dr. Moody made a recommendation for approval of the proposed program, noting both that the field is very high need, and that "there are no real comparable programs, of this caliber, currently being offered at this level within the state". With reference to the program being proposed, Dr. Moody observed that "this is a well thought out proposal for a very in-demand degree with faculty who are able and willing to provide the content." He also suggested that the partnership with Noodle can assist in delivering a "well designed and prepared online delivery of the program."

STUDENT DEMAND

In the fall of 2021, a student interest survey was distributed to current UTK undergraduate students enrolled in 14 sections of the Information Management course. In total, 517 students responded to the survey (62 percent of enrolled students). Sixty-five percent of respondents (336 students) indicated at least some interest in the proposed program, 96 students indicated that they were "likely or certain" to enroll, and an

additional 192 students indicated that they "could enroll" in the program. Approximately 80 percent of the respondents indicated they would work while enrolled in the degree program.

OPPORTUNITIES FOR PROGRAM GRADUATES

Program graduates will be prepared for a variety of jobs that require both business and technical backgrounds, including information cybersecurity analysts, risk managers, security awareness and training professionals, cybersecurity auditors, and cybersecurity auditors. These positions fall within the high-demand, expanding cybersecurity field. In March 2022, over 597,000 positions were open and being advertised on cyberseek.org. The US Bureau of Labor Statistics projects that cybersecurity jobs will grow 31 percent through 2029, which is well above the average job growth over the same period. A 2022 report by the International Information System Security Certificate Consortium projects that the cybersecurity workforce needs to grow 65 percent to meet current demand and identifies a worldwide cybersecurity workforce gap of 3.4 million people. Finally, THEC classified the larger career cluster, Computer and Information Systems Security/Auditing/Information Assurance, as a high-demand field in the 2022 Academic Supply for Occupational Demand Report.

Letters of support were provided from several corporations including: BDO Alliance, EY Consulting Services, FORVIS, InferSight, KPMG, KraftCPAs, Pugh CPAs, PwC, PYA, RSM, Strategic Security Solutions Consultation, SecZetta, and Unbanked. These letters point to interest in hiring program graduates, participating in an advisory capacity for the program, providing guest-speakers, and sponsoring real-world case studies.

INSTITUTIONAL CAPACITY TO DELIVER THE PROGRAM

The proposed program will be supported by eight existing Department of Accounting and Information Management faculty. One additional non-tenure track faculty member may be hired depending on program enrollment. The program will be supported by the Haslem College of Business' Graduate and Executive Education Department, who will assist with recruitment, admissions, partner relationship development, student services, and career management. A full-time program director and a part-time program support staff position will be hired to work directly with Noodle, the online program management company who will provide instructional design, technological consulting, student support services, and program marketing.

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.

PROGRAM COSTS

The proposed one-time and recurring expenditures for the Business Cybersecurity, MSBC program are listed in Table 1. The majority of the program costs are associated with the program's partnership with Noodle, an Online Program Management provider, which will provide program recruitment, instructional design, media production, technical support and ongoing student support. Fees paid to Noodle include costs associated with the development of program setup, the development of the ten required courses, the initial marketing efforts, and per course credit hour fees. UTK will hire two non-instructional staff positions, a part-time program support staff position and a full-time program manager position. These costs are reflected as program support costs.

Table 1: Estimated Costs to Deliver the Proposed Program

One-Time Expenditures						
Category	**Planning**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Accreditation						
Consultants						
Equipment	$55,000					
Information Tech						
Library						
Marketing						
Facilities						
Travel						
Other: OPM – Noodle	$867,693					
Total One-Time Expenditures	**$922,693**					
Recurring Expenditures						
Category	**Planning**	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Accreditation						
Consultants						
Equipment	$4,500	$9,000	$9,270	$9,548	$9,835	$10,130
Information Tech		$27,909	$83,727	$130,388	$167,891	$200,161
Library						
Marketing						
Facilities						
Travel						
Other: Program Support	$97,500	$308,425	$317,208	$327,208	$337,024	$347,135
Other: OPM - Noodle		$1,213,011	$992,645	$1,274,784	$1,417,768	$1,397,512
Other: Printing/Postage/ Miscellaneous	$4,000	$8,000	$8,240	$8,487	$8,742	$9,004
Total Recurring Expenditures	**$106,000**	**$1,566,345**	**$1,411,090**	**$1,750,415**	**$1,941,260**	**$1,963,942**
Grand Total (One-Time and Recurring)	**$1,028,693**	**$1,566,345**	**$1,411,090**	**$1,750,415**	**$1,941,260**	**$1,953,942**