Agenda Item #16-14
Effective: Fall 2017

EIU New Program Proposal
M.S. in Cybersecurity
Low-Residency, Cohort

A Collaborative Degree Program between the Schools of Business and Technology

M.S. in Cybersecurity is the selected title for this proposed degree program, which will employ a part-time, cohort program model for working professionals with a computer/information technology or related undergraduate degree. Target start for the initial annual cohort start-up is Fall, 2017. The two-year program completion requirement (inclusive of two summers) has a five day residential component upon completion of the second semester, and a fifteen day residential component at the conclusion of the fifth semester for both laboratory experiences and a 10 day residential capstone experience immediately following those laboratory sessions. Projected stabilized cohort size is 20-25 students beginning the program each fall.

The proposed low-residency, cohort, M.S. in Cybersecurity program at EIU will contribute significantly to both Goal 2 and Goal 3 of *The Illinois Public Agenda*. This program will meet both state-wide and national demands for qualified cybersecurity professionals. According to the Bureau of Labor Statistics' Occupational Outlook Handbook, employment of information security analysts is expected to rise "much faster than average" (37%) from 2012-2022, with median salary currently at $86,170 per year. Additionally, employment of information security analysts in Illinois is among the top quartile of all states in the U.S. These data show that Goal 3 is being met by providing a degree in a high demand field.

Additionally, the EIU Cybersecurity program is designed to expose students to relevant certification exams, specifically Certified Information Systems Security Professional (CISSP) and COMPTIA Security+. According to the National Initiative for Cybersecurity Education (NICE), these certifications are requisites for entering and performing successfully in the cybersecurity profession.

While there are existing information security master's degree programs in Illinois, there is no such program approved for online delivery among Illinois state institutions. This program will provide an affordable option for practicing information technology professionals, as it is designed as a part-time program with minimal EIU residential requirements, which addresses Goal 2 of *The Illinois Public Agenda*.

Through the proposed M.S. in Cybersecurity, students will be prepared to become leaders and technical managers in cybersecurity, which requires solid understanding of security technology and organizational management principles and practices in order for graduates to make sensible and responsible decisions. Typical positions will include (but are not limited to):

Cybersecurity Consultant
Network Security Specialist
Information Assurance Specialist
Computer Security System Analyst
Web Security Engineer
Information Security Officer
Information Security Operations Manager
Cybersecurity Administrator
Identity Management Analyst
IT Security Manager

Table 1 below shows program course requirements, titles, and credit hours. The courses highlighted in yellow are proposed new courses (5 credit hours). In addition, several of the courses listed have been revised to offer in either online or hybrid format.

Table 1: Cybersecurity Coursework Requirements

Course	**Credits**
1: TEC 5313 - Networking and Advanced Data Communications	3
2: TEC 5323 - Advanced Database Technology	3
3: TEC 5353 - Cybersecurity	3
4: MIS 4850 - Systems Security	3
5: TEC 5363 - Database Security and Reliability	3
6: AET 4823 - Facilities Security	3
7: CYB 5550 - Cybersecurity Professional Seminar (New Course)	3
8: MBA 5670 - Management of IT	3
9: TEC 5413 - Biometric Security	3
10: MIS 4860 - Ethical Hacking and Network Defense	3
11: CYB 5900 - Cybersecurity Capstone (New Course)	2
Total Required Hours	**32**

Table 2 displays a typical course sequence for students entering the program in the fall semester. All fall semester courses may be delivered completely online (i.e. no residential requirement). Spring semester courses each year have hands-on laboratory expectations, so students will have a one-week residential requirement during finals week of that semester to complete necessary labs. Summer courses are again delivered completely in an online format. The second summer of the program will consist of a residential requirement approximately two weeks in length to complete the two credit hour capstone experience at EIU. CYB 5900 Cybersecurity Capstone will begin after semester five laboratories are completed, resulting in two residential expectations for program completion, one week to end the first spring semester, and approximately three weeks to conclude the M.S. in Cybersecurity.

Table 2: Example Program Course Sequence

Fall I	**Spring I**	**Summer I**	**Fall II**	**Spring II**	**Summer II**
TEC 5313	TEC 5353	TEC 5363	CYB 5550	TEC 5413	CYB 5900
TEC 5323	MIS 4850	AET 4823	MBA 5670	MIS 4860	

Table 3 below shows high-end estimates of program cost. These assume full-time faculty members are dedicated to teaching all courses in the program. In reality, because most of the courses will be offered in an online format, we believe that there will be opportunities for hiring cybersecurity experts from throughout the nation (and world) who will teach classes as adjuncts. These estimates also assume we retain a cohort model, so that the number of sections of each class taught is easily estimated and controlled. Lab and library facilities are sufficient to support the program. A $60,000 upgrade to the telecommunications laboratory in the School of Technology was recently completed, and has been engineered to support this proposed new program in Cybersecurity. In addition, the School of Business has a telecommunications laboratory that will be employed during required residential components of the program. The $90,000 faculty expenses in year one of the program is based on 1 FTE faculty member at $90,000 salary to deliver the program. Likewise, the faculty salary figure in year five is based on the program's having two cohorts running simultaneously, for a total of 1.80 FTE faculty annually. It is estimated that $120,000 will be needed every five years to maintain the Cybersecurity-related laboratory equipment.

Table 3: Estimated Cost of the Program

ESTIMATED COSTS OF THE PROPOSED PROGRAM			
Category	**Unit of Measurement**	**Year One**	**5th Year (or when fully implemented)**
Personnel		$	$
Faculty	FTE	1.00	1.80
Faculty	$	$90,000	$162,000
Other Personnel Costs	$	$	$
Supplies, Services, Equipment[1]	$	$	$120,000
Facility Costs (5-year laboratory upgrade costs)	$	$	$
Other Costs (itemized):			$
☐	$	$	$
☐	$	$	$
☐	$	$	$
Total	**$**	**$90,000**	**$282,000**

Table 4 shows enrollment projections for the program. A class size of 16 students is assumed for the first cohort, which is expected to build to 25 students over the initial five years of the program. A new cohort is planned to start fall semester each year, and is based on program demand. Additionally, attrition of 4 students is assumed between the first and second year of the program, so at five years, the enrollment would be 25 + 21 = 46 students. Regarding FTE majors, students take 18 semester hours (1 graduate student FTE) during the first year of the program and 14 during the second year, so fifth year FTE would equal 25*1 + 21*(14/18).

Table 4: Enrollment Projections

STUDENT ENROLLMENTAND DEGREE PROJECTIONS FOR THE PROPOSED PROGRAM		
	Year One	**5th Year (or when fully implemented)**
Number of Program Majors (Fall Headcount)	16	46
Annual Full-time-Equivalent Majors (Fiscal Year)	16	41.3
Annual Number of Degrees Awarded	0	21