University of Kansas
Bachelor of Applied Science in Applied Cybersecurity

Program Approval

I. General Information

A. Institution University of Kansas

B. Program Identification

Degree Level:	Bachelor's
Program Title:	Applied Cybersecurity
Degree to be Offered:	Bachelor of Applied Science
Responsible Department or Unit:	School of Professional Studies
CIP Code:	43.0401
Modality:	Online
Proposed Implementation Date:	Spring 2023

Total Number of Semester Credit Hours for the Degree: 120

II. Clinical Sites: Does this program require the use of Clinical Sites? No

III. Justification

The School of Professional Studies proposes to create a hybrid and online Bachelor of Applied Science (BAS) degree with specific focus in applied cybersecurity to meet the growing employment demands of applied information security related workforce in the Kansas City metropolitan area, and greater Kansas and Missouri region. The bachelor degree program is designed for undergraduate students with a strong interest in practical and applied training in information technology and cybersecurity pathways and who have already earned an associate's degree or equivalent hours and are looking to complete the last two years necessary for a bachelor's degree. The program can be completed fully online, or hybrid, based on students' location and preference.

The BAS degree pathways will be an applied technical professional track baccalaureate completion degree for students transferring to KU Edwards. The program will provide non-engineering students interested in seeking to specialize in applied cybersecurity systems and applications with program curriculum content relevant to applied information security. These degrees are directed at students who wish to pursue applied technical careers. With KU Edwards offering baccalaureate degree completion programs, we anticipate students interested in pursuing the BAS degrees to come primarily from community college partners in the KC metro area, including JCCC and Metropolitan Community College in Missouri, both of whom currently offer cybersecurity related associate degree and certificate programs.

Though KU-Edwards does not currently offer lower-division undergraduate (freshman-sophomore) courses, this degree will potentially take advantage of either transferring credit in from other institutions or the KU Core Online, thus offering the opportunity for students in other states to have a fully remote learning experience. Although available to a nationwide audience, we anticipate students interested in pursuing the BAS in applied cybersecurity to come primarily from community college partners in the KC metro area, including JCCC and Kansas City Kansas Community College, and the Metropolitan Community College in Missouri. KU Edwards staff and faculty have worked with staff and faculty at metro area 2-year colleges--primarily JCCC--to align course offering and content with KU requirements and needs for seamless transfer of credit and progression from JCCC to Edwards.

IV. Program Demand: Market Analysis option selected.

Market Analysis
Two of the three community colleges located in the Kansas City metropolitan region offer associate degrees and certificates in information security and cybersecurity fields. Since 2020, Johnson County Community College awarded 327 associate degrees and certificates in computer science and information technology with 89 credentials awarded specifically in the areas of cybersecurity, Information Technology-Network, and Computer Support Specialist Networking/Security. (https://www.jccc.edu/about/leadership-governance/administration/institutional-effectiveness-branch/files/degrees-by-division.pdf) The other, Metropolitan Community College – Kansas City, has awarded 154 total credentials in Computer Science programs since 2020, 53 associates degrees and certificates specifically in cybersecurity and Security Systems Administration and Engineering. (https://mcckc.edu/research/docs/5Year_Completions_District.pdf).

Online bachelor's degrees with a focus in cybersecurity are currently offered by the University of Central Missouri, Western Governors University, Purdue Global, and Southern New Hampshire University. The proposed BAS degree provides an option for applied technical application of cybersecurity defense and protection measures and focuses on baccalaureate degree completion for students already completing an associate degree in information technology, information security, and cybersecurity. The KU program is distinguished by its close connections with Lawrence/Edwards academic programs as well as community college partners such as Johnson County Community College and Kansas City Kansas Community College (to minimize transfer chokepoints and other issues). This bachelor's program was designed explicitly from the start with attention to the transfer students entering the program and the preparation of students to acquire professional and workforce-ready skills leading to employment immediately following completion of the bachelor's degree. The degree will leverage strong multi-campus connections to academic and professional programs at KU Lawrence/Edwards to ensure the delivery of a high-quality hybrid, face-to-face, and online degree completion program. Additionally, Lifelong and Professional Education at KU offers a non-credit cybersecurity boot camp that provides a potential pipeline for continuation into baccalaureate degree completion in applied cybersecurity through the BAS which is designed to allow for more accessible transfer of credit for prior learning. Likewise, Kansas State University offers a cybersecurity boot camp, and skills gained from either boot camp could be applied to the BAS degree via KU's credit by examination policy.

In Kansas, K-State offers a BS in Cybersecurity through its Engineering school which is calculus-based and KSU plans to pursue ABET accreditation. The BAS from KU is distinguished from K-State by its applied focus which does not require calculus, and SPS will not pursue ABET accreditation for the BAS degree.

WSU offered a BS in Applied Computing through its Engineering school but in May 2022 changed the name of the degree to a BS in Cybersecurity. The curriculum aligns with ABET accreditation standards and WSU is considering seeking ABET accreditation. The BAS degree program from KU is distinguished from WSU because Professional Studies does not plan to pursue ABET accreditation and because of its strong connection with Kansas City area community colleges.

V. Projected Enrollment for the Initial Three Years of the Program

Year	Total Headcount Per Year		Total Sem Credit Hrs Per Year	
	Full- Time	Part-Time	Full- Time	Part-Time
Implementation	10	0	240	0
Year 2	20	10	480	120
Year 3	30	25	720	300

VI. Employment

National Perspective: Information security analysts plan and carry out security measures to protect an organization's computer networks and systems. The Bureau of Labor Statistics notes information security analysts typically need a minimum of a bachelor's degree. Nationally, according to the Bureau of Labor Statistics, employment of information security analysts is projected to grow 33 percent from 2020 to 2030, much faster than the average for all occupations. About 16,300 openings for information security analysts are projected each year, on average, over the decade. Many of those openings are expected to result from the need to replace workers who transfer to different occupations or exit the labor force.

Regional Perspective: The Greater Kansas City area is home to a number of large technology-focused corporations' headquarters, including Cerner (12,800 employees), Garmin (4,500 employees), T-Mobile (4,000 employees), and H&R Block (1,750 employees). The region is also home to a growing number of mid- and small-sized technology companies, with more than 15,000 tech businesses in Kansas and Missouri, accounting for ~7% ($10.2 billion) and ~7.5% ($22.4 billion) of each state's economy, respectively. The tech sector's share of the KC metro economy is even larger, at ~10.5% ($13 billion). Additionally, the region boasts numerous tech-sector growth initiatives, such as the National Security Crossroads, an effort led by Kansas and Missouri focused on raising government awareness of security-related operations. These initiatives encompass seven major military bases as well as 11 national-security installations. Today, the Kansas and Missouri region specializes in tech-sector jobs, employing over 100,000 people in the Kansas City metropolitan region. On an industry basis, the percentage of Kansas and Missouri regional jobs in tech industries is 1.24 times that of the U.S., while the percentage of jobs in tech occupations is 1.12 times that of the U.S. In 2020, more than 20,000 tech-job openings were posted in Kansas City, the third-highest percentage growth in tech jobs in the U.S., trailing only San Francisco and Austin. In the next 10 years, the region's tech-workforce demand is expected to increase. More specifically related to information security workforce needs, in 2019, the Mid-America Regional Council (MARC) identified a need to strengthen educational offerings in cybersecurity to meet area employers' growing demand for talent.

VII. Admission and Curriculum

A. Admission Criteria

Students must apply to KU and be admitted by the School of Professional Studies. Prior to entering the program, students must complete two (2) years of undergraduate college course work with a total of 60 semester credit hours and a cumulative GPA of at least 2.0.

B. Curriculum

Year 1: Fall **SCH = Semester Credit Hours**

Course #	Course Name	SCH 15
Core 1.1	Critical Thinking Course	3
Core 1.2	Quantitative Literacy Elective	3
Core 3S	Social Science Course	3
Core 2.1	Written Communications Elective 1	3
	Open Elective/Minor Course	3

Year 1: Spring

Course #	Course Name	SCH 16
Core 3H	Arts and Humanities Course	3
Core 2.2	Oral Communications Elective 1	3

Core 2.1	Written Communications Elective 2	3
PHSX 114	Natural Science Core 3N	4
Math 101	College Algebra	3

Year 2: Fall

Course #	Course Name	SCH 15
Math 103	Trigonometry	2
EECS 168	Programming I	4
Core 4.1	Human Diversity Goal	3
	Open Elective/Minor Course	3
	Open Elective/Minor Course	3

Year 2: Spring

Course #	Course Name	SCH 14
Math 365	Elementary Statistics	3
EECS 268	Programming II	4
Core 4.2	Global Culture Awareness	3
EECS 210	Discrete Structures	4

Year 3: Fall

Course #	Course Name	SCH 15
ITEC 310	Computer & Organization Platform Technologies	3
PFS 301	Communication in the Workplace	3
ITEC 320	System and Network Administration	3
ENGL 362	Foundations of Technical Writing	3
ITEC 380	Managing IT Projects	3

Year 3: Spring

Course #	Course Name	SCH 15
ITEC 450	Social & Professional Issues	3
PFS 302	Leadership in Practice	3
ITEC 340	Community & Information Security	3
ITEC 420	Operating Systems	3
	Applied Cybersecurity Elective	3

Year 4: Fall

Course #	Course Name	SCH 15
ITEC 342	Information Security Management	3
ITEC 422	Computer Networks	3
ITEC 454	Information Security Law & Policy	3
ITEC 428	Testing and Vulnerability Analysis	3
	Open Elective/Minor Course	3

Year 4: Spring

Course #	Course Name	SCH 15
ITEC 494	Cyber Security Capstone	3
ITEC 426	Cyber Defense and Counter Measures	3
ITEC 452	Special Topics in ITEC	3
	Applied Cybersecurity Elective	3

	Open Elective/Minor Course	3

Total Number of Semester Credit Hours ……. [120]

VIII. Core Faculty

Note: * Next to Faculty Name Denotes Director of the Program, if applicable
FTE: 1.0 FTE = Full-Time Equivalency Devoted to Program

Faculty Name	Rank	Highest Degree	Tenure Track Y/N	Academic Area of Specialization	FTE to Proposed Program
New Hire, Yr. 1	Assistant or Associate Professor of the Practice	MS or PhD	N	Cyber Security	1.0
New Hire, Yr. 2	Assistant or Associate Professor of the Practice	MS or PhD	N	Cyber Security	1.0
Blake Bryant	Associate Professor of the Practice	PhD	N	Cyber Security	0.5
Chris Seasholtz	Assistant Professor of the Practice	MS	N	Information Technology	0.5
Pingle Jacob	Assistant Professor of the Practice	MS	N	Data Analytics	0.25
Rassul Saeedipour	Professor of the Practice	MS	N	Information Technology	0.25
Heather McCain*	Director & Professor of the Practice	PhD	N	Technology Management	0.5

Number of graduate assistants assigned to this program ……. **[0]**

IX. Expenditure and Funding Sources *(List amounts in dollars. Provide explanations as necessary.)*

A. EXPENDITURES	First FY	Second FY	Third FY
Personnel – Reassigned or Existing Positions			
Faculty	$205,154	$210,283	$215,540
Administrators *(other than instruction time)*			
Graduate Assistants			
Support Staff for Administration (*e.g., secretarial*)			
Fringe Benefits *(total for all groups)*	$66,601	$68,779	$71,039
Other Personnel Costs	$25,000	$25,625	$26,265

Total Existing Personnel Costs – Reassigned or Existing	$296,755	$304,687	$312,844
Personnel – New Positions			
Faculty	$88,000	$178,200	$182,655
Administrators *(other than instruction time)*			
Graduate Assistants			
Support Staff for Administration (*e.g., secretarial*)			
Fringe Benefits *(total for all groups)*	$25,828	$52,918	$54,673
Other Personnel Costs			
Total Existing Personnel Costs – New Positions	$113,828	$231,118	$237,328
Start-up Costs – One-Time Expenses			
Library/learning resources			
Equipment/Technology			
Physical Facilities: Construction or Renovation			
Other	$15,000	$15,000	
Total Start-up Costs	$15,000	$15,000	
Operating Costs – Recurring Expenses			
Supplies/Expenses			
Library/learning resources	$500	$500	$500
Equipment/Technology			
Travel			
Other	$13,900	$15,300	$15,300
Total Operating Costs	$14,400	$15,800`	$15,800
GRAND TOTAL COSTS	$439,983	$566,605	$565,972

B. FUNDING SOURCES *(projected as appropriate)*	Current	First FY (New)	Second FY (New)	Third FY (New)
Tuition / State Funds		$116,400	$291,000	$494,700
Student Fees		0	0	0
Other Sources (JCERT)		$439,983	$566,605	$565,972
GRAND TOTAL FUNDING		$556,383	$857,605	$1,060,672
C. Projected Surplus/Deficit (+/-) (Grand Total Funding *minus* Grand Total Costs)		$116,400	$291,000	$494,700

X. Expenditures and Funding Sources Explanations

A. Expenditures
Personnel – Reassigned or Existing Positions

The Applied Cybersecurity program primarily utilizes existing courses that are currently offered at KU Edwards in the Information Technology program and Professional Studies. Costs of instruction are already covered by these existing programs since they have additional enrollment capacity in the courses being offered. Course development of the remaining five Cybersecurity courses will be done by existing faculty in the Information Technology program and the new faculty hired for the Cybersecurity once they are on board.

A current academic success coach will be assigned to work with the Applied Cybersecurity program. The Applied Cybersecurity program will make up 50% of their student load and the Applied Cybersecurity program will fund 50% of salary and fringe.

Personnel – New Positions

The Applied Cybersecurity program will hire two new faculty members with an emphasis on cybersecurity, one in Year 1 and one in Year 2. They will teach courses in the program and work with existing faculty in the IT program to develop five courses.

Start-up Costs – One-Time Expenses

In order to ensure a successful launch of the hybrid program, we have designated $15,000 for course development for each of the first two years. These funds will provide faculty with additional resources to develop the courses needed for the program.

Operating Costs – Recurring Expenses

All equipment, library, and supplies have been accounted for in the existing services provided to KU Edwards Students and no additional cost will be associated with the program. The KU Edwards Campus is allocating $500 each year for instructional resources, $2,500 each year for recruitment efforts, and $10,000 each year for marketing efforts. In addition, the new faculty hires will receive $1,400 each year for professional development.

B. Revenue: Funding Sources
The BAS in Applied Cybersecurity program is a Johnson County Education and Research Triangle[1] (JCERT) funded program. The program will be fully funded through JCERT funds and tuition revenue. No state funds will be utilized. JCERT funds will be used to help fund the program during the implementation year until the program is revenue generating and sustainable on tuition funds alone. BAS in Applied Cybersecurity students will be charged an all-inclusive tuition rate of $485 per credit hour to ensure that the program is affordable and accessible to all students, nationwide.

[1] The Johnson County Education Research Triangle (JCERT) is a unique partnership between Johnson County, the University of Kansas, and Kansas State University. Its goal is to create economic stimulus and a higher quality of life through new facilities for research and educational opportunities. In November 2008, Johnson County voters invested in the county's future by voting for a 1/8-cent sales tax to fund JCERT initiatives, including development of the National Food and Animal Health Institute at K-State Olathe; the KU Clinical Research Center in Fairway, Kansas; and here at KU Edwards, the BEST Building with several degree and certificate offerings in business, engineering, science, and technology.

Projected Surplus/Deficit

Given the anticipated costs and revenue, the program is expected to run a deficit for the first few years of implementation. JCERT funds will be used to help fund the program during the implementation years until the program is revenue generating and sustainable on tuition funds alone. With the current enrollment estimates, the program is expected to have a revenue surplus after five years. These funds will be utilized to help improve the overall student experience and provide additional funding.

XI. References

Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Field of degree: Business, at https://www.bls.gov/ooh/field-of-degree/business/business-field-of-degree.htm (visited *December 06, 2021*).

Elka Torpey, "Projected openings in occupations that require a college degree," Career Outlook, U.S. Bureau of Labor Statistics, September 2021. https://www.bls.gov/careeroutlook/2021/article/projected-openings-college-degree.htm (Retrieved December 17, 2021).

Elka Torpey, "Education level and projected openings, 2019–29," *Career Outlook,* U.S. Bureau of Labor Statistics, October 2020. https://www.bls.gov/careeroutlook/2020/article/education-level-and-openings.htm#s4.

Johnson County Community College, Degree and Certificate Award by Division: https://www.jccc.edu/about/leadership-governance/administration/institutional-effectiveness-branch/files/degrees-by-division.pdf (visited, August 15, 2022).

Metropolitan Community College, Five Year Completion: https://mcckc.edu/research/docs/5Year_Completions_District.pdf (visited, August 15, 2022).

Mid-America Regional Council, GradForce Education Asset Inventory for Greater Kansas City, 2017; university websites; College Factual Mid-America Regional Council – Regional Planning for Greater Kansas City. (n.d.). Retrieved from https://www.marc.org/.

Mid-America Regional Council, Talent to Industry Exchange: A Labor Analysis of the Life Sciences Industry in the Kansas City Region, February 2018.