MASTER OF SCIENCE IN CYBERSECURITY
UNIVERSITY OF HOUSTON-VICTORIA

Congruence with System Goals and University Mission

The proposed Master of Science in Cybersecurity aligns with the UH System and University of Houston – Victoria's (UHV) goals by promoting academic excellence, innovation, workforce development, and community engagement, positioning UHV as a leader in cybersecurity education. The proposed program will seek to:

- *Advance academic excellence*: The program offers a cutting-edge curriculum that integrates cybersecurity, AI, and business principles, preparing students for the evolving job market.
- *Foster innovation*: By emphasizing AI and business in cybersecurity, the program promotes innovation and strengthens industry partnerships, aligning with UH System's focus on real-world impact.
- *Support workforce development*: The program addresses the critical need for skilled cybersecurity professionals in Texas, contributing to regional economic growth and workforce readiness.

The program also aligns with UHV's mission by:

- *Enhancing Educational Access*: Offering online and ITV options broadens access to high-quality education, supporting UHV's mission to serve diverse student populations.
- *Fulfilling Strategic Goals*: The program's focus on interdisciplinary education and real-world applications aligns with UHV's vision of becoming a leader in innovative, workforce-oriented education.
- *Strengthening Community Engagement*: With strong industry ties and a focus on practical outcomes, the program supports UHV's strategic goals of enhancing community engagement and preparing students for impactful careers.

In addition, as UHV grows its reputation as a "destination university" for undergraduate students, this graduate degree in Cybersecurity adds to our graduate-level offerings in computer-related fields and provides a clear and straightforward career-growth pathway for those completing a BS in Computer Science or Computer Information Systems with UHV.

Program Description

The M.S. in Cybersecurity program consists of 18 credit hours of core courses and 12 credit hours of prescribed electives or thesis work. The program aims to train students in key areas of cybersecurity, equipping them with the ability to make ethical decisions, manage risks, and implement security policies effectively. Through this program, students will learn to assess threats, develop policies, and apply risk mitigation strategies in a fast-evolving digital landscape. These skills will prepare graduates to enter careers in cybersecurity, where the ability to balance privacy, security, and legal requirements is essential for success. Upon completion of this program, students will be able to:

- Apply ethical principles and make informed decisions in cybersecurity scenarios by balancing the needs for security, privacy, and organizational objectives in a global and legal context.

- Evaluate and implement cybersecurity policies, governance frameworks, and compliance standards to ensure organizational security and regulatory adherence.
- Develop the ability to conduct comprehensive risk assessments, identify cybersecurity vulnerabilities, and create risk mitigation strategies that align with organizational goals.

The curriculum balances theoretical knowledge with practical skills through hands-on experiences, lab work, and real-world applications. Both thesis and non-thesis tracks are available, with the thesis option preparing students for potential doctoral studies. The program prepares graduates for roles such as cybersecurity analysts, consultants, and Chief Information Security Officers.

Student and Job Market Demand

The cybersecurity job market is experiencing rapid growth, with the Bureau of Labor Statistics projecting a 33% increase in Information Security Analyst positions from 2020-2030. As of June 2023, there were over 663,000 open cybersecurity positions nationwide, with only 69 workers available for every 100 job openings. In Texas, demand is expected to increase by 39% by 2028. However, the current supply of qualified graduates is insufficient to meet this demand, creating a significant skills gap that this program aims to address. In 2020, only 9,608 students graduated with a cybersecurity degree nationwide, with approximately 800 in Texas. This shortage is particularly acute in the Gulf Coast region, where numerous Fortune 500 companies require cybersecurity professionals to protect their digital assets. The program has received support from UHV's Cybersecurity Advisory Committee, composed of industry leaders who recognize the need for specialized cybersecurity education.

Program Duplication

According to the Texas Higher Education Coordinating Board program inventory, there are seven public institutions in Texas that offer related Cybersecurity programs, including Stephen F. Austin State University, Texas A&M University-San Antonio, University of Houston, University of North Texas, University of Texas at Dallas, University of Texas at San Antonio, and University of Texas at Tyler.

Faculty Resources

The program will initially utilize existing Computer Science and Business faculty with relevant expertise. Key faculty members include Dr. Daya Nand (Associate Professor of Computer Science, Ph.D. in Network Security) will lead the program and teach program core courses; Dr. Hardik Gohel (Associate Professor of Computer Information Sciences, with expertise in AI and cybersecurity) will teach applied AI related cybersecurity courses; Dr. Asahi Tomitaka (Assistant Professor of Computer Science, with a background in engineering and computer science) will cover traditional computer science-related cybersecurity courses. As the program grows, additional faculty may be hired to support expansion. Current faculty possess a range of research interests and industry experience in areas such as network security, cloud computing, and cybersecurity management. The program will also leverage UHV's existing computer labs and online learning infrastructure.

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State or National Need

The proposed M.S. in Cybersecurity addresses a critical workforce need in Texas and nationally. With cyber threats increasing across all sectors, there is urgent demand for professionals with advanced cybersecurity skills. The program will contribute to closing the cybersecurity talent gap, enhancing organizational and national security, and supporting economic growth in the technology sector. The program aligns with the Texas Higher Education Coordinating Board's strategic plan, *Building a Talent Strong Texas*, by providing graduates with advanced knowledge and postsecondary credentials of value in a high-demand field. It also supports the state's goal of becoming a leader in the technology industry. At the national level, the program addresses the Department of Homeland Security's call for increased cybersecurity education to protect critical infrastructure and national security interests. By producing highly skilled cybersecurity professionals, the program will contribute to the economic development of the Gulf Coast region and Texas as a whole, while also enhancing the nation's capacity to address evolving cyber threats.

PRO FORMA FOR MS in Cybersecurity

FY2026

			Operating Years					
			Year 0	FY2026	FY2027	FY2028	FY2029	FY2030
Enrollments				Fall25	Fall26	Fall27	Fall28	Fall29
Cohort 1				15	13			
Cohort 2					20	18		
Cohort 3						25	22	
Cohort 4							25	22
Cohort 5								25
Cohort 6								
Total				15	33	43	47	47
Expenses								
Faculty (9 month)	Salary	% effort	Year 0	FY2026	FY2027	FY2028	FY2029	FY2030
Daya Nand	92,000	80%		73,600	75,072	76,573	78,105	79,667
Hardik Gohel	79,532	20%		15,906	16,225	16,549	16,880	17,218
Asahi Tomitaka	80,000	20%		16,000	16,320	16,646	16,979	17,319
Position 4				-	-	-	-	-
Position 5				-	-	-	-	-
Position 6				-	-	-	-	-
Adjuncts			-	-	-	-	-	-
Subtotal	251,532	120%	-	105,506	107,617	109,769	111,964	114,204
Faculty FTE				1.2	1.2	1.2	1.2	1.2
Staff (12 month)								
Position 1--college-level shared administrative support	40,000	5%		2,000	2,040	2,081	2,122	2,165
Position 2				-	-	-	-	-
Position 3				-	-	-	-	-
Position 4				-	-	-	-	-
Position 5				-	-	-	-	-
Position 6				-	-	-	-	-
Graduate Students			-	-	-	-	-	-
Subtotal	40,000	5%	-	2,000	2,040	2,081	2,122	2,165
Staff FTE				0.05	0.05	0.05	0.05	0.05
Total Salaries			-	107,506	109,657	111,850	114,087	116,368
Benefits @ 20.5%			-	22,039	22,480	22,929	23,388	23,856
Total Personnel			-	129,545	132,136	134,779	137,474	140,224
Non-Personnel								
Marketing/Recruiting				5,000	4,000	3,000	3,000	3,000
Scholarships & Tuition Assistantships					-	-	-	-
Annual maintenance & operations				1,000	1,000	1,000	1,000	1,000
Library and Information Technology				1,000	1,000	1,000	1,000	1,000
Accreditation				-	5,000	5,000	5,000	5,000
Facilities					-	-	-	-
Laboratory and other equipment				3,000	3,000	3,000	3,000	3,000
Other			-	-	-	-	-	-
Total Non-Personnel			-	10,000	14,000	13,000	13,000	13,000
Allocated to university operations		10%		7,952	17,493	35,805	37,925	45,360
Total Annual Expense			$ -	$ 147,497	$ 163,629	$ 183,584	$ 188,400	$ 198,584
Revenue								
Formula Funding Generated				-	-	152,157	152,157	239,104
Statutory Tuition Applied to Formula				-	-	(22,050)	(22,050)	(34,650)
Subtotal: State General Revenue				-	-	130,107	130,107	204,454
UH Tuition and Fees				87,750	193,050	251,550	274,950	274,950
Allocated to set aside per student				(8,235)	(18,117)	(23,607)	(25,803)	(25,803)
Total Revenue from Enrollment				79,515	174,933	358,050	379,254	453,601
Philanthropy and other External Revenue				-	-	-	-	-
Net Revenue				79,515	174,933	358,050	379,254	453,601
Net Annual Gain/(Loss)			-	**$ (67,982)**	**$ 11,304**	**$ 174,466**	**$ 190,854**	**$ 255,017**
Cumulative Gain/(Loss)			-	**$ (67,982)**	**$ (56,678)**	**$ 117,788**	**$ 308,642**	**$ 563,659**

Campus Signoff JoAnn S. Olson Date: 9/12/2024

Daniel Chang, Program Director, Office of the Provost Signature: _____ Date: _____

Vivianne Do, Executive Director, Office of the Provost Signature: _____ Date: _____