



## Cover Sheet for In-State Institutions

### New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	Capitol Technology University
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*Each action below requires a separate proposal and cover sheet.*

- |   |   |
|---|---|
| <input checked="" type="radio"/> New Academic Program | <input type="radio"/> Substantial Change to a Degree Program            |
| <input type="radio"/> New Area of Concentration       | <input type="radio"/> Substantial Change to an Area of Concentration    |
| <input type="radio"/> New Degree Level Approval       | <input type="radio"/> Substantial Change to a Certificate Program       |
| <input type="radio"/> New Stand-Alone Certificate     | <input type="radio"/> Cooperative Degree Program                        |
| <input type="radio"/> Off Campus Program              | <input type="radio"/> Offer Program at Regional Higher Education Center |

Payment <input checked="" type="radio"/> Yes	Payment <input type="radio"/> R*STARS #99633	Payment Amount: 850.00	Date Submitted: 2/1/26
Submitted: <input type="radio"/> No	Type: <input checked="" type="radio"/> Check # 99633		

Department Proposing Program	Engineering		
Degree Level and Degree Type	Bachelor of Science (B.S.)		
Title of Proposed Program	Bachelor of Science (B.S.) in Management of Operational Technology and Systems		
Total Number of Credits	120		
Suggested Codes	HEGIS: 509.00	CIP: 15.1501	
Program Modality	<input type="radio"/> On-campus <input type="radio"/> Distance Education (fully online) <input checked="" type="radio"/> Both		
Program Resources	<input checked="" type="radio"/> Using Existing Resources <input type="radio"/> Requiring New Resources		
Projected Implementation Date <small>(must be 60 days from proposal submission as per COMAR 13B.02.03.03)</small>	<input checked="" type="radio"/> Fall <input type="radio"/> Spring <input type="radio"/> Summer            Year: 2026		
Provide Link to Most Recent Academic Catalog	URL: <a href="https://www.captechu.edu/academics/catalog">https://www.captechu.edu/academics/catalog</a>		

Preferred Contact for this Proposal	Name: Dr. Mohamed Ghazy
	Title: Dean of Academics
	Phone: (240) 965-2473
	Email: mshehata@captechu.edu

President/Chief Executive	Type Name: Dr. Bradford Sims
	Signature:  Date: 2-1-26
	Date of Approval/Endorsement by Governing Board: FEB. 1, 2026

Revised 1/2021



February 2, 2026

Dr. Sanjay Rai  
Secretary of Maryland Higher Education  
Maryland Higher Education Commission  
217 E. Redwood Street, Suite 2100  
Baltimore, MD 21202

Dear Dr. Rai,

Capitol Technology University is requesting approval to offer a **Bachelor of Science (B.S.) in Management of Operational Technology and Systems**. The degree curriculum will be delivered using existing university faculty and supported through the development and integration of engineering-focused coursework addressing operational technology, secure systems design, and the protection of cyber-physical and industrial systems. Capitol Technology University's mission is to provide a practical education in engineering, computer science, information technology, and business—preparing individuals for professional careers and enabling them to thrive in a dynamic and evolving global environment. A central element of the university's mission is the advancement of hands-on, workforce-relevant knowledge that is valued by employers and aligned with the university's applied, career-focused academic programs. The university believes that the proposed Bachelor of Science in Secure Engineering of Operational Technology and Systems aligns closely with this mission.

Demand for professionals with expertise in engineering, securing, and maintaining operational technology and complex cyber-physical systems continues to grow across multiple sectors, including industrial automation, critical infrastructure, energy, manufacturing, transportation, and defense-related systems. Employers increasingly seek graduates who possess strong technical foundations, systems-level engineering understanding, and the ability to design, secure, and manage operational technologies in real-world, risk-sensitive environments. The proposed program has been developed in direct response to these workforce and industry needs.

The program is designed for individuals seeking to develop and advance competencies in secure systems engineering, operational technology, risk-aware problem-solving, and professional engineering practice applicable across a wide range of technology-driven industries. The program emphasizes hands-on learning, applied systems engineering, and security-by-design principles to prepare graduates for immediate employment, responsibility in critical systems environments, and long-term career advancement.

To address these workforce and educational needs, Capitol Technology University respectfully submits for approval the **Bachelor of Science in Management of Operational Technology and Systems**. Included with this submission is the required letter confirming the adequacy of the university's library resources to support the instructional and research needs of students enrolled in this program.

Respectfully,

A handwritten signature in black ink that reads "Bradford L. Sims".

Bradford L. Sims, PhD

President



February 2, 2026

Dr. Sanjay Rai  
Secretary of Maryland Higher Education  
Maryland Higher Education Commission  
217 E. Redwood Street, Suite 2100  
Baltimore, MD 21202

Dear Dr. Rai,

This letter is submitted in response to the request for confirmation regarding the adequacy of Capitol Technology University's library resources to support the proposed **Bachelor of Science (B.S.) in Management of Operational Technology and Systems**. As President of Capitol Technology University, I affirm that the Puente Library, including its physical collections, digital databases, and professional support staff, is fully equipped to support the instructional and research needs of students and faculty in this engineering-focused, interdisciplinary program. Existing library holdings provide robust access to resources in operational technology, industrial control systems, secure systems engineering, cybersecurity, cyber-physical systems, automation, risk management, standards and compliance, and emerging technologies relevant to the design, protection, and resilience of critical technical systems.

Capitol Technology University is committed to the continuous enhancement of its library resources. The institution allocates sufficient funding to ensure that collections, electronic databases, and instructional materials are regularly reviewed, updated, and expanded in alignment with program development, technological advancement, and evolving workforce, security, and industry requirements. This commitment ensures that students enrolled in the Bachelor of Science in Management of Operational Technology and Systems program have access to the academic and professional resources necessary for student success, engineering practice, and workforce readiness.

Respectfully,

A handwritten signature in black ink that reads "Bradford L. Sims".

Bradford L. Sims, PhD

President

PROPOSAL FOR:

- NEW INSTRUCTIONAL PROGRAM
- SUBSTANTIAL EXPANSION/MAJOR MODIFICATION
- COOPERATIVE DEGREE PROGRAM
- WITHIN EXISTING RESOURCES or  REQUIRING NEW RESOURCES



Institution Submitting Proposal  
Fall 2026  
Projected Implementation Date

**Bachelor of Science**  
Award to be Offered

**Bachelor of Science in  
Management of Operational  
Technology and Systems**  
Title of Proposed Program

509.00  
Suggested HEGIS Code

15.1501  
Suggested CIP Code

Engineering  
Department of Proposed Program

**Dr. Mohamed Shehata**  
Name of Department Head

**Dr. Mohamed Ghazy**  
Dean of Academic

mshehata@captechu.edu  
Contact E-Mail Address

(240) 965-2473  
Contact Phone Number

 3-5-26  
Signature and Date

President/Chief Executive Approval

MARCH 5, 2026  
Date

Date Endorsed/Approved by Governing Board

# **Bachelor of Science (B.S.) in Management of Operational Technology and Systems**

**Capitol Technology University**

**Laurel, Maryland**

## **A. Centrality to Mission and Planning Priorities**

### **1. Program Description and Alignment with Institutional Mission**

The Bachelor of Science (B.S.) in Management of Operational Technology and Systems at Capitol Technology University is designed to provide students with comprehensive education in the planning, implementation, and management of technology-driven operational systems across diverse industries. This program equips students with technical knowledge, management expertise, and strategic decision-making skills required to lead technology-enabled organizations and oversee complex operational ecosystems in the 21st-century digital landscape.

The program integrates core business and management disciplines with operational technology fundamentals, cybersecurity principles, data systems management, process optimization, and organizational change management. Students develop expertise in technology infrastructure, systems integration, operational efficiency, regulatory compliance, supply chain management, and digital transformation leadership. This comprehensive approach prepares graduates for roles in technology operations management, systems implementation, digital transformation coordination, and operational leadership across manufacturing, healthcare, logistics, energy, telecommunications, government, and enterprise organizations.

The B.S. in Management of Operational Technology and Systems directly supports the institution's mission of providing STEM-focused, applied, and career-relevant education that prepares students for leadership roles in technology-driven industries. The program emphasizes practical application, industry alignment, and professional readiness, reinforcing Capitol Technology University's commitment to producing graduates equipped to meet the evolving demands of organizations navigating rapid technological change and complex operational environments.

Unlike traditional engineering programs or general business degrees, this program is intentionally designed to prepare graduates for technology-enabled operational leadership roles that require integrated knowledge of systems, processes, and management rather than discipline-specific engineering licensure.

### **2. Support for Institutional Strategic Goals**

Capitol Technology University operates on four strategic goals, and the B.S. in Management of Operational Technology and Systems program directly supports each of these initiatives:

#### **a. Expand Educational Offerings and Increase Program Completion**

The introduction of the B.S. in Management of Operational Technology and Systems expands the university's academic portfolio by offering a management-focused technology operations degree that complements existing engineering and technical programs. By integrating operational management education with technology systems knowledge, the program broadens access to technology leadership careers and supports student retention and completion through a clearly structured, career-aligned curriculum.

## **b. Increase Enrollment and Institutional Awareness**

The global technology operations and digital transformation sectors continue to experience strong demand for professionals with operational management expertise combined with technology systems knowledge. This program is expected to attract diverse student populations interested in technology leadership, operational management, and digital transformation roles. Targeted outreach, partnerships with technology employers, manufacturing firms, healthcare systems, and engagement with community college pathways will support enrollment growth and strengthen Capitol Technology University's national reputation in technology-driven operational education.

The program is particularly well positioned to attract transfer students, working professionals, and adult learners seeking advancement into technology operations leadership roles without pursuing traditional engineering licensure.

## **c. Improve Resource Utilization and Institutional Effectiveness While Expanding Revenue**

The program leverages existing business, technology, and general education courses, maximizing current faculty expertise and instructional resources. Enrollment growth will contribute to tuition revenue and long-term program sustainability. The program's applied nature supports institutional effectiveness through experiential learning, internships, and industry-driven projects that enhance student outcomes and employer engagement.

## **d. Increase the Number and Scope of Partnerships**

Capitol Technology University will expand partnerships with Fortune 500 corporations, technology service providers, manufacturing organizations, healthcare systems, telecommunications firms, energy sector employers, and government agencies. These partnerships will support internships, capstone projects, guest lectures, and employment pipelines. Industry engagement will provide ongoing input into curriculum relevance and workforce alignment.

## **Evidence of Institutional Priority**

The B.S. in Management of Operational Technology and Systems has been identified as an institutional priority due to the following factors:

- a. Industry advisory board members and employer partners have indicated a growing need for professionals with operational technology and systems management expertise.
- b. The program addresses workforce demand for technology operations leadership roles across manufacturing, healthcare, logistics, telecommunications, energy, and government sectors, aligning with national and regional economic development priorities.
- c. Capitol Technology University has committed faculty resources, curriculum development support, and administrative oversight to ensure successful program implementation.
- d. The program aligns with the university's mission to deliver applied, industry-driven education and strengthens its portfolio of technology and STEM-focused degree offerings.

## **3. Program Funding for the First Five Years**

The B.S. in Management of Operational Technology and Systems program will be adequately funded for at least the first five years through a combination of institutional support, tuition revenue, industry engagement, and external funding opportunities. Capitol Technology University has developed a financial plan to ensure program sustainability while maintaining high academic quality and appropriate faculty and instructional resources.

Funding sources include:

- a. Institutional support for program development, faculty staffing, and administrative oversight during the initial implementation period.
- b. Collaboration with technology operations and manufacturing industry partners to support experiential learning opportunities, internships, and industry-supported projects.
- c. Tuition revenue generated through enrollment growth, with the program expected to become self-sustaining within three to five years.
- d. Pursuit of workforce development grants, STEM education funding, and state or private funding opportunities to support instructional resources and student scholarships.
- e. Engagement with alumni, corporate partners, and philanthropic organizations to support long-term program development and student success initiatives.

#### **4. Institutional Commitment**

##### **a. Ongoing Administrative, Financial, and Technical Support**

Capitol Technology University is committed to providing sustained administrative, financial, and technical support for the B.S. in Management of Operational Technology and Systems program. The university will allocate qualified faculty, academic advisors, and administrative staff to support program delivery, student advising, and industry engagement. Institutional resources will be dedicated to maintaining instructional quality, updating course content, and supporting experiential learning activities aligned with evolving technology operations practices.

The university's information technology and academic support services will ensure access to relevant technology operations software, data resources, and learning platforms. Faculty will be encouraged to engage in ongoing professional development to remain current with industry trends, technology advancement, and best practices in technology operations management and digital transformation.

##### **b. Program Continuity**

Capitol Technology University is fully committed to sustaining the B.S. in Management of Operational Technology and Systems program to allow enrolled students to complete their degrees in a timely manner. The institution maintains policies and procedures to ensure program continuity, including faculty coverage, course scheduling, and academic advising.

In the event of unforeseen circumstances, the university has established teach-out and transition plans to support student completion. Ongoing assessment of enrollment trends, student outcomes, and workforce needs will guide continuous improvement and ensure the long-term viability of the program.

#### **B. Critical and Compelling Regional and Statewide Need**

##### **1. Demand and Need for the Program**

The proposed Bachelor of Science (B.S.) in Management of Operational Technology and Systems at Capitol Technology University is designed to meet a critical statewide and regional workforce need for professionals with management and operational expertise specific to technology systems, digital transformation, and complex operational environments. As Maryland's technology, healthcare, manufacturing, and telecommunications sectors continue to expand, employers increasingly require graduates who understand technology infrastructure, systems integration, operational efficiency, change management, and technology-driven business operations.

The program addresses this need by integrating foundational management education with technology operations knowledge, systems architecture awareness, cybersecurity principles, and applied decision-making

skills. Graduates will be prepared for roles in technology operations management, systems implementation, digital transformation coordination, supply chain optimization, and organizational leadership positions that support Maryland's technology economy and operational sector competitiveness.

These workforce needs are not fully addressed by traditional engineering programs, which emphasize technical design, or by general business degrees, which lack sufficient operational technology depth. This program is intentionally designed to bridge that gap.

## **a. Advancement and Evolution of Knowledge**

The technology and operations landscape is undergoing rapid transformation driven by cloud computing, artificial intelligence, automation, data analytics, edge computing, blockchain, and increasingly complex regulatory and security environments. In response, the proposed B.S. in Management of Operational Technology and Systems incorporates a forward-looking curriculum that emphasizes modern operational practices within a technology context.

The program integrates coursework in technology infrastructure, systems integration, process optimization, supply chain management, cybersecurity management, data analytics, change management, and organizational leadership. Students are exposed to data-driven decision-making, emerging operational technologies, automation frameworks, and industry-partnered capstone projects that address real-world operational challenges.

This approach directly supports the Maryland State Plan's Goal 3: Innovation -- "Foster innovation in all aspects of Maryland higher education to improve access and student success," specifically:

Priority 8: Promote a culture of risk-taking -- "Promote a culture of risk-taking and experimentation that encourages the development of new ideas, pedagogies, pathways, and technologies to improve education delivery and outcomes."

By integrating applied management education with operational technology and systems content, the program reflects an innovative curricular model that prepares graduates to lead digital transformation and manage complex operational systems within rapidly evolving industries.

## **b. Societal Needs and Educational Opportunities**

The B.S. in Management of Operational Technology and Systems program expands educational access to high-growth technology operations and digital transformation careers for underrepresented populations, including minority, first-generation, female, adult, and veteran students. By offering a business and operations management pathway into technology leadership that is accessible to students with diverse academic backgrounds, the program broadens participation in technology-driven sectors.

Capitol Technology University supports this objective through targeted recruitment, scholarships, transfer pathways, and academic support services designed to promote equitable access and student success. These efforts align with:

Goal 1: Student Access -- "Ensure equitable access to affordable and high-quality postsecondary education for all Maryland residents."

By offering a technology operations and management degree, the program broadens participation in the technology sector and helps diversify Maryland's technology leadership workforce.

## **c. Support for Minority-Serving Institutions**

Although Capitol Technology University is not a Historically Black Institution (HBI), approximately 51% of its student population identifies as minority, including 34% Black/African American students. The university is committed to expanding access through collaborative partnerships with HBIs and other minority-serving institutions, including articulation agreements and shared academic initiatives.

These efforts support:

Priority 1: Study the affordability of postsecondary education in Maryland, by reducing financial barriers through transfer pathways and scholarships.

Priority 2: Examine and improve financial literacy programs for students and families, through advising and outreach initiatives.

The proposed program is designed to complement existing technology and business offerings while expanding technology management education opportunities for underrepresented populations.

## **2. Consistency with Maryland State Plan**

The Maryland State Plan for Postsecondary Education articulates three overarching goals:

1. Student Access
2. Student Success
3. Innovation

### **Goal 1: Student Access**

"Ensure equitable access to affordable and quality postsecondary education for all Maryland residents."

Capitol Technology University is committed to providing equitable access to high-quality, career-focused education in technology operations and management. The B.S. in Management of Operational Technology and Systems expands access to well-paying and stable careers in the technology and operations sectors by offering an applied, industry-aligned program that develops practical leadership skills.

The University's student demographics demonstrate its commitment to access and inclusion:

- a. 51% of students identify as minorities, including 34% Black/African American students.
- b. 22% of students are military veterans who benefit from leadership-oriented and applied technology curricula.
- c. The University actively encourages female participation in technology-related programs, addressing gender disparities in the industry.

To further expand access, Capitol Technology University provides:

- a. Transfer agreements with Maryland community colleges.
- b. Financial aid and scholarship opportunities to reduce economic barriers.
- c. Flexible learning options that support working adults and nontraditional students.

These initiatives align with State Plan Priorities 1, 2, and 4, supporting affordability, financial literacy, and equitable access.

### **Goal 2: Student Success**

"Promote and implement practices and policies that will ensure student success."

The B.S. in Management of Operational Technology and Systems program is designed to promote student retention, timely degree completion, and strong employment outcomes. Capitol Technology University supports student success through:

- a. Comprehensive academic advising, tutoring, and career services.
- b. Industry-informed curriculum and applied coursework aligned with employer expectations.
- c. Internships, experiential learning opportunities, and industry-partnered capstone projects.

The technology operations and management sectors continue to show strong demand for leadership professionals. Operations and technology management roles offer competitive salaries and long-term career stability, supporting positive return on investment for graduates.

Additional institutional strategies supporting student success include:

- a. Tuition predictability programs.
- b. Veteran and military student support services.
- c. Early Alert and academic intervention systems.

These efforts align with Priorities 6 and 7: Improve systems that prevent timely completion and Enhance lifelong learning opportunities.

### **Goal 3: Innovation**

"Foster innovation in all aspects of Maryland higher education to improve access and student success."

Capitol Technology University has a long-standing commitment to innovation in applied STEM and professional education. The proposed B.S. in Management of Operational Technology and Systems advances this commitment by delivering a modern, interdisciplinary program that integrates management education with technology operations practice.

Key innovations include:

- a. Integration of technology operations, systems management, and organizational leadership frameworks.
- b. Applied learning through case studies, simulations, and industry-informed projects.
- c. Capstone experiences that address real-world technology operations and transformation challenges.

Through strategic partnerships with technology employers, manufacturing firms, healthcare systems, and government agencies, the program remains responsive to Maryland's evolving technology operations needs.

### **3. Quantifiable Evidence of Market Supply and Demand**

#### **Potential Industries and Employment Opportunities**

Graduates of the **Bachelor of Science (B.S.) in Management of Operational Technology and Systems** program will be prepared for employment across a wide range of industries requiring technology operations management, systems implementation, and operational leadership expertise. Demand for technology operations professionals is driven by continued digital transformation, cloud migration, automation adoption, cybersecurity requirements, and the increasing need for integrated technology and operational management.

#### **Potential Industries and Employment Opportunities**

Graduates of the program may pursue careers in the following sectors:

- a. **Technology and Software Companies** -- Positions in technology operations, IT service delivery, systems implementation, infrastructure management, and operational leadership.
- b. **Manufacturing and Industrial Operations** -- Roles in production operations technology, process optimization, equipment management, supply chain technology, and operations management.
- c. **Healthcare and Life Sciences** -- Employment in healthcare IT operations, medical systems management, facility operations, and clinical technology coordination.
- d. **Telecommunications and Energy Sectors** -- Management roles in network operations, energy management systems, infrastructure operations, and technical service delivery.
- e. **Financial Services and Banking** -- Technology operations, transaction processing systems management, compliance operations, and technology risk management.
- f. **Government and Defense** -- Employment with federal and state agencies in technology operations management, cybersecurity operations, systems integration, and public sector IT operations.

**g. Logistics and Supply Chain** -- Managing technology-enabled supply chain operations, warehouse management systems, transportation technology, and operational analytics.

**h. Consulting and Professional Services** -- Supporting organizations with technology operations optimization, digital transformation planning, systems integration, and operational efficiency improvement.

## **Employment Statistics and Salary Expectations**

According to the U.S. Bureau of Labor Statistics (BLS), technology operations, systems, and management roles demonstrate strong wage potential and long-term stability:

a. Computer and Information Systems Managers earn a median annual wage of approximately \$163,000 nationally, with higher averages in major metropolitan regions.

b. Industrial Production Managers overseeing technology-enabled operations earn a median annual wage of approximately \$110,200, with Maryland wages exceeding national averages.

c. Operations Managers in technology and specialized sectors earn salaries commonly ranging from \$85,000 to over \$130,000, depending on experience and organizational scope.

d. Project Managers in technology and operations roles earn average salaries of \$110,000+, with significant growth potential.

Regional data indicate that technology operations and management professionals employed in the Baltimore-Washington metropolitan area and surrounding technology corridors benefit from strong salary prospects due to concentration of technology firms, government contractors, healthcare systems, and corporate headquarters.

## **Expected Level of Entry**

Graduates of the B.S. in Management of Operational Technology and Systems program can expect to enter the workforce in entry-level to early mid-level professional roles, including operations coordinator, systems analyst, technology operations specialist, junior project manager, or operations associate. With professional experience, internships, and successful completion of capstone projects, graduates may advance into supervisory and management roles within three to five years, supporting long-term career growth and leadership development.

## **National and State Projections**

According to the U.S. Bureau of Labor Statistics, employment for computer and information systems managers is projected to grow by 15% from 2023 to 2033, faster than average. Industrial production managers are projected to decline slightly, but roles integrating technology and operations management are growing. Nationally, this equates to thousands of annual job openings in technology operations, systems management, and operational leadership roles.

The Maryland Department of Labor projects continued growth in technology operations and management occupations, particularly within the Baltimore-Washington region. Employment demand is supported by major technology hubs, proximity to federal agencies, and the presence of manufacturing, healthcare, and corporate employers. State projections indicate hundreds of annual openings in technology operations, systems management, and leadership roles.

The 2024 Maryland Statewide Workforce Development Plan identifies technology operations, digital transformation, and advanced manufacturing as priority sectors requiring a steady pipeline of management and technical talent. The plan emphasizes aligning higher education programs with employer needs to sustain economic growth.

## Employer Hiring Trends

The 2024 Annual Report by the Maryland Department of Labor highlights continued employer demand for professionals with technology operations, systems management, and operational leadership skills across multiple industries. Employers anticipate sustained hiring due to retirements, digital transformation initiatives, and increased reliance on data-driven and technology-enabled management practices.

### 4. Market Survey Evidence

Multiple national and regional sources confirm sustained demand for technology operations and management professionals:

- a. **Industry Projections** -- Gartner and other research firms project sustained growth in technology operations and digital transformation services through the next decade.
- b. **National Employment Data** -- U.S. Bureau of Labor Statistics projections for technology management, industrial operations, and related occupations indicate continued growth, with tens of thousands of annual openings nationally.
- c. **State-Level Projections** -- Maryland occupational data confirm steady demand for operations managers, technology managers, and systems analysts.
- d. **Current Job Market Indicators** -- Maryland-based job postings consistently reflect demand for operations managers, technology operations specialists, systems implementation coordinators, and operational leadership roles.
- e. **Educational and Training Needs** -- Employers increasingly seek graduates who combine operational management acumen with technology systems knowledge. The B.S. in Management of Operational Technology and Systems directly addresses this need by integrating management fundamentals with technology operations, systems thinking, and applied learning experiences.

### Current and Projected Supply

The supply of graduates with technology operations management education in Maryland remains limited. While the state offers engineering, computer science, and business programs, there are relatively few bachelor's-level programs dedicated specifically to technology operations management and systems thinking.

Existing programs and general business degrees provide partial preparation but do not fully address the specialized needs of technology operations employers. As a result, many organizations recruit from broader business or engineering programs and provide extensive on-the-job training.

Over the next five years, Maryland is projected to experience substantial demand for technology operations, digital transformation, and systems management professionals. The proposed B.S. in Management of Operational Technology and Systems is designed to help close this gap by producing graduates with integrated management, technology, and operational expertise.

## C. Program Differentiation and Duplication Analysis

### 1. Similar Programs in Maryland and the Region

Several institutions in Maryland and the surrounding region offer programs related to business, management, technology, or operations. The following discussion summarizes those offerings and identifies similarities and differences relative to the proposed **B.S. in Management of Operational Technology and Systems**.

## **a. University of Maryland, College Park -- Technology-Related Programs**

The University of Maryland offers engineering management, business administration, and technology-related programs. These programs focus primarily on either pure engineering/technology or traditional business functions rather than integrating operational technology systems management with business leadership development.

The proposed B.S. in Management of Operational Technology and Systems differs by emphasizing technology operations management, systems integration, process optimization, and operational leadership as an integrated focus rather than as a technical specialization within engineering or a peripheral topic in business.

## **b. Morgan State University and Coppin State University -- Business Administration Programs**

Both institutions offer traditional business administration degrees. While these programs provide valuable business foundations, they do not specifically address technology operations systems, digital transformation management, or operational technology expertise.

The proposed Capitol program differs in its specialized focus on technology-enabled operations, systems thinking, and the integration of technology infrastructure management with business leadership, creating a distinct pathway for technology operations careers.

## **c. Community College Programs**

Maryland community colleges offer certificates and associate degrees in technology, business, and operations. These programs provide valuable workforce preparation but are delivered at the certificate and associate levels rather than as a comprehensive bachelor's degree.

The proposed Capitol program differs in credential level and depth, providing a comprehensive bachelor's curriculum emphasizing technology operations management competencies applied specifically to complex systems and organizational leadership roles, culminating in a capstone project integrating technology and operational knowledge.

## **d. Regional Out-of-State Programs**

While some regional universities offer technology management or operations management degrees, the proposed Capitol program is specifically designed to meet Maryland workforce needs and provide a Maryland-based pathway for students seeking a technology operations and management degree aligned with regional employers, technology firms, and government agencies.

## **2. Justification for the Proposed Program**

The proposed B.S. in Management of Operational Technology and Systems at Capitol Technology University responds to a documented and continuing need for professionals who can manage, optimize, and lead within complex technology-enabled operational environments where efficiency, compliance, security, and technological advancement must be integrated.

The program is justified because it provides a distinct academic pathway that emphasizes **technology operations and systems management** as a dedicated bachelor's degree, rather than as a concentration within engineering or a peripheral topic in general business degrees.

## **a. Workforce Need for Technology Operations and Management Talent**

Maryland's technology and operations ecosystem includes major technology firms, corporate headquarters, manufacturing facilities, healthcare systems, telecommunications infrastructure, energy operations, and government technology agencies that require skilled operational and technology leadership. As organizations face increasing operational complexity, digital transformation pressures, compliance requirements, and workforce transitions, employers seek graduates who can combine operational management with technology systems knowledge and systems thinking.

## **b. Distinct Academic Focus and Program Differentiation**

The proposed program is designed to be clearly distinct from pure engineering programs, computer science degrees, and traditional business administration programs. It emphasizes operational technology and systems management integrated with business and organizational leadership, structured to prepare graduates for technology operations roles, systems implementation leadership, digital transformation coordination, and operational management positions in technology-enabled organizations.

## **c. Alignment with State and Regional Workforce Priorities**

The program supports Maryland's continued emphasis on building a talent pipeline aligned with high-demand sectors, strengthening technology operations and digital transformation capacity, and promoting applied, career-oriented education in STEM fields. The program supports technology operations employer needs tied to manufacturing, healthcare, telecommunications, energy, financial services, and government agencies.

## **d. Competitive Advantage and Industry Collaboration**

Capitol Technology University will leverage industry engagement to ensure curriculum relevance, experiential learning opportunities, and professional readiness. Partnerships with technology employers, manufacturing firms, healthcare systems, and technology service providers can support internships, applied projects, guest instruction, and advisory input.

## **D. Program Impact on Historically Black Institutions**

### **1. Impact on HBI High-Demand Programs**

The proposed Bachelor of Science (B.S.) in Management of Operational Technology and Systems at Capitol Technology University is not expected to negatively impact the implementation or maintenance of high-demand programs at Maryland's Historically Black Institutions (HBIs).

Maryland HBIs offer strong undergraduate programs in business, engineering, computer science, and information systems that serve important workforce and access missions. For example:

- Morgan State University offers a Bachelor of Science in Information Systems and a Bachelor of Science in Services and Supply Chain Management.
- Bowie State University offers a Bachelor of Science in Computer Technology and a Bachelor of Science in Business Administration.
- Coppin State University offers a Bachelor of Science in Management Science and a Bachelor of Science in Computer Science.
- University of Maryland Eastern Shore (UMES) offers a Bachelor of Science in Business Administration and a Bachelor of Science in Engineering Technology.

While these programs include elements of business management, information systems, engineering technology, and supply chain management, none offer a dedicated Bachelor of Science specifically focused on the integrated management of operational technology systems that combines:

- Technology infrastructure fundamentals
- Enterprise systems integration
- Cloud architecture
- Operations optimization and analytics
- Technology operations security
- Industry 4.0 and operational technology management

The proposed B.S. in Management of Operational Technology and Systems is designed to complement—not duplicate—these offerings. Through articulation agreements, transfer pathways, and collaborative outreach initiatives, students who begin their academic careers in programs such as the B.S. in Information Systems, B.S. in Computer Technology, B.S. in Business Administration, or B.S. in Management Science at HBIs could transfer into Capitol Technology University to complete a specialized upper-division technology operations management degree.

By offering a complementary and non-duplicative academic pathway, the proposed program enhances access to high-demand technology operations careers for underrepresented students and supports statewide goals related to collaboration, workforce development, and equitable access to career-focused higher education.

## **2. Impact on HBI Institutional Identities and Missions**

The proposed B.S. in Management of Operational Technology and Systems is designed with a focused, applied, and workforce-oriented emphasis and is therefore unlikely to interfere with or alter the uniqueness or institutional identities of Maryland’s HBIs.

Institutions such as **Morgan State University, Bowie State University, Coppin State University,** and **University of Maryland Eastern Shore** maintain missions centered on educational access, community engagement, leadership development, and inclusive excellence. Their academic portfolios include comprehensive programs in liberal arts, public service, business, STEM, and professional disciplines that reflect long-standing institutional identities.

Capitol Technology University’s proposed program is intentionally aligned with its own mission to deliver applied, technology-driven education focused on industry preparation. The B.S. in Management of Operational Technology and Systems addresses a specialized niche within technology-enabled operational leadership and enterprise systems management. It does not replicate the broader liberal arts foundations, community-centered engagement models, or comprehensive academic identities that define Maryland’s HBIs.

Capitol Technology University recognizes the importance of preserving and strengthening the missions of HBIs and remains committed to collaborative opportunities, including articulation agreements and cooperative initiatives that expand student pathways without compromising institutional distinctiveness.

## **E. Curriculum Design and Learning Outcomes**

### **1. Program Development and Faculty Oversight**

The Bachelor of Science in Management of Operational Technology and Systems was developed through a collaborative process involving faculty from Capitol Technology University’s technology, engineering, and business programs, the Office of Academic Affairs, and input from industry partners and advisory board members. The program was created in response to regional and national workforce demand for graduates with technology operations management, systems thinking, and leadership readiness applicable to organizations across diverse sectors.

The program builds upon existing institutional strengths in technology studies, systems engineering, business administration, quantitative foundations, and professional practice. It integrates approved courses and organizes them into a cohesive, interdisciplinary curriculum emphasizing applied learning, systems thinking, and real-world technology operations and management decision-making.

The program will be overseen by full-time faculty with expertise in technology operations, systems integration, information technology management, supply chain operations, process optimization, business management, accounting, finance, economics, and organizational leadership. These faculty hold advanced degrees and bring a combination of academic and industry experience relevant to technology operations management practice.

### **2. Educational Objectives and Learning Outcomes**

## **Educational Objectives:**

Graduates of the Management of Operational Technology and Systems program will:

- a. Be prepared for entry-level and early-career employment in technology operations, systems management, and operational leadership roles.
- b. Apply operational management and systems thinking principles to technology-enabled organizations and complex operational environments.
- c. Demonstrate professional communication, ethical responsibility, teamwork, and project management skills in technology operations and business contexts.
- d. Develop an understanding of technology infrastructure, operational systems, change management frameworks, and regulatory environments that influence operational decision-making.
- e. Engage in lifelong learning, professional development, certification, or continued education in technology operations and business-related fields.

## **Learning Outcomes:**

Upon graduation, students will be able to:

- a. Apply foundational management concepts in accounting, finance, marketing, strategy, and economics to technology operations and systems-enabled organizations.
- b. Analyze technology infrastructure, systems architectures, and operational requirements to support informed business and operational decisions.
- c. Communicate effectively with technical and non-technical audiences through written reports, presentations, and professional documentation.
- d. Recognize ethical, professional, security, regulatory, and operational responsibilities in technology operations and management settings and make informed decisions.
- e. Function effectively as a member of a professional team by contributing to planning, coordination, systems implementation, and project execution.
- f. Integrate operational technology knowledge and management expertise in a culminating senior capstone project addressing a real-world technology operations or systems challenge.

## **3. Assessment of Student Learning**

### **a. Assessment Mechanisms**

Assessment of student learning outcomes will be conducted using a combination of direct and indirect measures. Each course includes clearly defined learning outcomes mapped to program-level outcomes. Faculty assess student achievement through exams, analytical assignments, case studies, presentations, applied projects, and team-based activities.

The two-semester senior capstone sequence serves as the culminating assessment experience, evaluating students' ability to integrate technology, operational, and management knowledge, apply project management and systems thinking practices, analyze technology operations challenges, and communicate results effectively.

### **b. Documentation of Achievements**

Capitol Technology University maintains a centralized process for documenting student learning outcomes and program-level assessment results. Course portfolios include syllabi, assignments, rubrics, and

representative student work. Faculty submit annual assessment summaries documenting outcome achievement, identifying areas for improvement, and recommending curricular adjustments.

#### 4. Course Requirements and Curriculum

The Bachelor of Science in Management of Operational Technology and Systems is a 121-credit undergraduate degree designed to prepare students for immediate employment and long-term career advancement in technology operations, systems management, and operational leadership fields.

#### Curriculum Structure

##### I. General Education (24 Credits)

Course Number & Title	Credits	Prerequisite
EN 101 – English Communications I	3	None
EN 102 – English Communications II	3	EN 101
HU 220 – Critical Thinking	3	EN 102
HU 225 – Writing for the Internet	3	EN 101
HU 331 – Arts and Ideas	3	EN 102
SS 351 – Ethics	3	EN 102
Social Science Elective	3	None
Humanities Elective	3	None

##### II. Mathematics & Quantitative Foundations (22 Credits)

Course Number & Title	Credits	Prerequisite
MA 112 – Intermediate Algebra	3	MA 005 or placement
MA 114 – Algebra and Trigonometry	4	MA 112 or placement
MA 128 – Introduction to Statistics	3	MA 114
BUS 282 – Foundations of Economics	3	BUS 174, EN 101, EN 102
BUS 114 – Advanced Excel	3	None
CS 120 – Introduction to Programming Using Python	3	None
PH 201 – General Physics I	3	MA 114

##### III. Business & Management Core (30 Credits)

Course Number & Title	Credits	Prerequisite
BUS 174 – Introduction to Business and Management	3	None
BUS 200 – Business Communications	3	EN 101
BUS 270 – Financial Accounting I	3	None
BUS 275 – Human Resource Management	3	BUS 174, EN 101, EN 102
BUS 283 – Managerial Accounting	3	BUS 174, MA 112
BUS 376 – Marketing Principles	3	BUS 174, EN 102
BUS 301 – Project Management	3	EN 101, BUS 174
BUS 372 – Financial Management	3	BUS 270, MA 112
BUS 410 – Strategic Management	3	BUS 174, EN 101, EN 102
BUS 386 – Organizational Theory & Behavior	3	BUS 275

#### IV. Technology Operations & Systems Core (33 Credits)

Course Number & Title	Credits	Prerequisite
OPS 101 – Introduction to Operations Management	3	None
OPS 251 – Technology Infrastructure Fundamentals	3	None
OPS 141 – Systems Thinking and Design	3	None
OPS 143 – Cloud Computing Architecture	3	OPS 141
OPS 201 – Enterprise Systems Integration	3	OPS 141
OPS 202 – Operations Optimization and Analytics	3	OPS 201, MA 128
OPS 254 – Supply Chain Operations Management	3	None
OPS 256 – Technology Operations Security	3	None
OPS 290 – Operational Technology and Industry 4.0	3	None
OPS 457 – Technology Operations Capstone I	3	Senior standing
OPS 458 – Technology Operations Capstone II	3	OPS 457

#### V. General Electives (12 Credits)

Course Number & Title	Credits	Prerequisite
General Elective 1	3	—
General Elective 2	3	—
General Elective 3	3	—
General Elective 4	3	—

#### Credit Summary

- General Education: **24**
- Mathematics & Quantitative Foundations: **22**
- Business & Management Core: **30**
- Technology Operations & Systems Core: **33**
- General Electives: **12**

**TOTAL: 121 CREDITS**

#### Course Descriptions

##### *GENERAL EDUCATION (24 CREDITS)*

**EN-101 -- English Communications I (3 credits):** This introductory college-level course focuses on effective oral and written communication skills and the development of analytical abilities through various reading and writing assignments. Students demonstrate competence in writing mechanics, including grammar, sentence structure, logical content development, and research documentation through 4 essays/research papers. Topics include description, comparison/contrast, narrative, and process analysis. Students develop effective oral communication skills through speeches. Group projects develop team skills including decision-making, time management, and cooperation. Prerequisite(s): Acceptance based on placement test scores.

**EN-102 -- English Communications II (3 credits):** This sequel to EN-101 involves more sophisticated reading, writing, speaking, and research assignments. Students demonstrate competence in writing mechanics and advanced research skills, the ability to handle complex information, and effective team skills. Students write research papers including an information paper, cause-and-effect paper, argument paper, and final research paper. The course includes group work and required presentations. Prerequisite(s): EN 101.

**HU 220 -- Critical Thinking (3 credits):** This course explores the process of critical thinking and guides students in developing clearer, more insightful, and more effective reasoning skills. Using examples from personal experience and contemporary issues, students practice analyzing arguments, evaluating evidence, solving problems, and making informed decisions. Readings, structured writing assignments, and guided discussions strengthen analytical and reflective thinking skills applicable to academic, professional, and personal contexts. Prerequisite(s): EN 102.

**HU 225 -- Writing for the Internet (3 credits):** This course introduces students to writing for online platforms to support effective digital communication in formats such as blogs and websites. Emphasis is placed on developing clear, engaging content using active voice and audience-centered writing strategies. Topics include the workflow and demands of Internet writing and publishing, content development, and audience engagement. Students learn how to launch and maintain a blog and prepare articles for online publication. Prerequisite(s): EN 101.

**HU 331 - Arts and Ideas (3 credits):** This course enables students to study and appreciate various forms of art, including painting, sculpture, architecture, music, drama, film, and literature through in-class and on-site experiences. The arts are surveyed from a historical perspective, focusing primarily on eras in Western civilization. Students sense the parallel development of the arts, philosophy, and sociopolitical systems and recognize various ways of viewing reality. Prerequisite(s): EN 102.

**SS 351 -- Ethics (3 credits):** This course is designed to help students improve their ability to make ethical decisions by providing a framework that enables the student to identify, analyze, and resolve ethical issues that arise when making decisions. Case analysis is a primary tool of this course. Prerequisite(s): EN 102.

**Social Science Elective (3 Credits):** This elective provides students with an opportunity to explore human behavior and social systems through disciplines such as sociology, psychology, political science, or economics. The course emphasizes critical thinking, ethical reasoning, and an understanding of cultural and societal dynamics that influence human interactions. Prerequisite: None.

**Humanities Elective (3 Credits):** This elective allows students to engage with the human experience through the study of literature, philosophy, art, religion, or history. The course fosters critical analysis, creative thinking, and appreciation for cultural diversity and human values. Prerequisite: None.

#### *MATHEMATICS & QUANTITATIVE FOUNDATIONS (22 CREDITS)*

**MA 112 -- Intermediate Algebra (3 credits):** Designed for students needing mathematical skills for MA-114. Students are introduced to equations and inequalities and learn the language of algebra and related functions, including polynomial, rational, exponential and logarithmic functions. Topics include solving equations, inequalities and systems of linear equations; performing operations with real numbers, complex numbers and functions; constructing and analyzing graphs; and using mathematical modeling to solve application problems. Prerequisite(s): MA 005 or placement test score.

**MA 114 - Algebra and Trigonometry (4 credits):** Designed for students needing mathematical skills for advanced courses. Topics include algebra (basic operations on real and complex numbers, fractions, exponents and radicals), solution of linear, fractional, quadratic and system equations, trigonometry (definitions and identities, angular measurements, solving triangles, vectors, graphs and logarithms). Prerequisite(s): MA 112 or placement test score.

**MA 128 - Introduction to Statistics (3 credits):** This course addresses probability definitions, theorems, permutations and combinations; binomial, hypergeometric, Poisson and normal distributions; sampling distribution and central limit theorem; and estimation and hypothesis testing. Prerequisite(s): MA 110, MA 111 or MA 112.

**BUS 282 -- Foundations of Economics (3 credits):** This course is an introduction to economic concepts and analysis, focusing on the relationship between government, business, and the overall economy. Key areas include gross domestic product, the public sector, unemployment, aggregate supply and demand, and the

global economy. Topics include international trade and protectionism. Prerequisite(s): BUS 174, EN 101, EN 102.

**BUS 114 -- Advanced Excel (3 credits):** This course stresses the ten core areas of advanced Excel usage: advanced formulas, tables and formatting, conditional formatting, advanced charting, pivot tables and pivot reporting, VBA and macros, productive Excel use, data tables, simulations and solver, Excel integration with other tools, and optimizing Excel. Practice with realistic data sets allows students to use Excel in professional simulations. Prerequisite(s): None.

**CS 120 -- Introduction to Programming Using Python (3 credits):** The course covers basic concepts and elements of computer programming using Python. Topics include variables, constants, operators, expressions, statements, branching, loops, and functions. Additionally, Python-specific data structures, built-in functions, library modules and working with external files are applied in developing working code. Prerequisite(s): None.

**PH 201 -- General Physics I (3 credits):** This is a non-calculus-based physics course addressing mechanics (units, conversion factors, vector diagrams, equilibrium, friction, torque, uniformly accelerated motion, projectiles, Newton's Laws, work energy and power, kinetic and potential energy, conservation of energy, and impulse and momentum) and heat (temperature scales, thermal properties of matter, heat and temperature change, heat and change of phase, heat transfer physics, and applications). Prerequisite(s): MA 114.

#### *BUSINESS & MANAGEMENT CORE (30 CREDITS)*

**BUS 174 - Introduction to Business and Management (3 credits):** This course presents a survey of the general business and management environment. Topics include various forms of business, organizational structure, and their legal implications. Modern management and supervision concepts, history and development of theory and practice, the roles of managers, and manager-employee relationships are examined. This is a seminar course emphasizing class discussion and collaborative learning.

**BUS 200 -- Business Communications (3 credits):** This course includes preparation for various kinds of both written and oral business communication. The course develops and sharpens critical thinking and writing skills, including report/proposal preparation and presentation. Strategies for effective communication are explored. Prerequisite(s): EN 101.

**BUS 270 -- Financial Accounting I (3 credits):** This is an introductory accounting course providing students with strong basic knowledge of accounting terms, concepts, and procedures. Analyzing business transactions, the General Ledger, special journals, and the full accounting cycle are addressed. The accounting principles described are those endorsed by the Financial Accounting Standards Board. Prerequisite(s): None.

**BUS 275 -- Human Resource Management (3 credits):** This course examines the role of the human resource professional as a strategic partner in managing today's organizations. Key functions such as recruitment, selection, development, appraisal, retention, compensation, and labor relations are examined in the context of government, private, and public sectors. Prerequisite(s): BUS 174, EN 101, EN 102.

**BUS 283 -- Managerial Accounting (3 credits):** This course focuses on budgeting and planning. Emphasis is on the use of accounting information to plan and redirect allocations to support business decisions. The course outlines how accountants create, organize, interpret and communicate information that improves internal processes and allows organizations to identify opportunities to create value. Prerequisite(s): BUS 174, MA 112.

**BUS 376 -- Marketing Principles (3 credits):** The role of marketing and the strategies used by marketing managers to solve problems is the content of this course. Emphasis is placed on the relationship among consumers, business, and government regarding product, promotion, pricing, and distribution strategies. Industry standards and ethical practice are focal points. Prerequisite(s): BUS 174 and EN 102.

**BUS 301 -- Project Management (3 credits):** This course is an introduction to project management covering origins, philosophy, methodology, and actual applications and tools such as MS Project. The System Development Cycle is used as a framework to discuss project management. Illustrative cases are used and project leadership and team building are covered as integral aspects of good project management. Prerequisite(s): EN 101, BUS 174.

**BUS 372 -- Financial Management (3 credits):** This course familiarizes students with the principles that guide firm financial resources management. The primary philosophy is wealth maximization and the decision criterion used to achieve such a state. Topics include capital management, fixed-asset investment, cost of capital, capital structure, long-term finance, mergers, leasing, and multinational finance. Accounting terminology and concepts relevant to financial analysis and decision making are presented. Prerequisite(s): BUS 270 and MA 112.

**BUS 410 -- Strategic Management (3 credits):** Designed to provide students with a general overview of systematic and continuous planning processes used by management to gain strategic and competitive advantage. Students are exposed to and practice the complex interrelationships between strategy, structure, culture, and management. Strategic and tactical strategies are explored using case studies, projects and discussions. Students develop and assess management's role in strategy formulation, implementation and evaluation. Prerequisite(s): BUS 174, EN 101, EN 102.

**BUS 386 -- Organizational Theory & Behavior (3 credits):** This course integrates the study of management principles and practices with human behavior within organizations. The focus is on translation of management and organizational behavior theory to practices that result in organizational effectiveness, efficiency, and human resource development. Concepts associated with continuous improvement in individual and group processes are discussed. Specific attention is given to organizational behaviors, diversity, attitudes and job satisfaction, personality and values, perceptions and decision making, motivation, group behavior, communication, leadership, power, politics, and conflict. Prerequisite(s): BUS 275.

#### *TECHNOLOGY OPERATIONS & SYSTEMS CORE (33 CREDITS)*

**OPS 101 -- Introduction to Operations Management (3 credits):** This course provides an overview of operations management principles, methods, and practices. Topics include operations strategy, process design, capacity planning, forecasting, inventory management, quality management, and continuous improvement methods including Lean and Six Sigma. The course emphasizes how operations management drives organizational competitiveness and customer satisfaction. Real-world case studies illustrate applications across manufacturing, services, and technology sectors. Prerequisite(s): None.

**OPS 251 -- Technology Infrastructure Fundamentals (3 credits):** This course introduces the foundational components of modern technology infrastructure. Topics include network architecture, data centers, cloud computing basics, server systems, storage technologies, and virtualization concepts. Students gain an understanding of how technology infrastructure supports organizational operations and enables digital transformation. Prerequisite(s): None.

**OPS 141 -- Systems Thinking and Design (3 credits):** This course introduces students to systems thinking principles and their application to technology operations and organizational challenges. Topics include systems modeling, feedback loops, cause-and-effect analysis, and design thinking methodologies. Students learn how to analyze complex systems, identify interdependencies, and design solutions that account for system-wide impacts. The course emphasizes practical application through case studies and projects. Prerequisite(s): None.

**OPS 143 -- Cloud Computing Architecture (3 credits):** This course provides detailed examination of cloud computing architectures, service models (IaaS, PaaS, SaaS), and deployment models (public, private, hybrid). Topics include cloud security, compliance, cost management, and migration strategies. Students

develop understanding of how organizations leverage cloud technologies to improve operational efficiency and scalability. Prerequisite(s): OPS 141.

**OPS 201 -- Enterprise Systems Integration (3 credits):** This course covers the planning, design, and implementation of enterprise-wide systems integration. Topics include Enterprise Resource Planning (ERP) systems, integration platforms, data management, system interoperability, and change management in systems implementation. Students examine how organizations integrate disparate systems to improve operational efficiency and information flow. Case studies showcase real-world implementation challenges and solutions. Prerequisite(s): OPS 141.

**OPS 202 -- Operations Optimization and Analytics (3 credits):** This course focuses on applying data analytics and optimization techniques to improve operational performance. Topics include process analytics, performance metrics, predictive analytics, and optimization modeling. Students learn to use data-driven approaches to identify inefficiencies, forecast demand, optimize resource allocation, and support evidence-based decision-making in operations. Prerequisite(s): OPS 201, MA 128.

**OPS 254 -- Supply Chain Operations Management (3 credits):** This course covers supply chain strategy, design, and management. Topics include procurement, supplier management, logistics, inventory optimization, and supply chain collaboration. Students examine how technology enables supply chain visibility, coordination, and efficiency. Real-world case studies illustrate supply chain challenges and solutions across industries. Prerequisite(s): None.

**OPS 256 -- Technology Operations Security (3 credits):** This course addresses cybersecurity principles, risk management, and operational security practices specific to technology operations. Topics include information security frameworks, threat assessment, business continuity planning, disaster recovery, compliance requirements (HIPAA, GDPR, SOC 2), and security incident response. Students develop understanding of how security integrates into operational technology management. Prerequisite(s): None.

**OPS 290 -- Operational Technology and Industry 4.0 (3 credits):** This course examines the intersection of operational technology with digital transformation and Industry 4.0 principles. Topics include IoT (Internet of Things), automation systems, advanced manufacturing, artificial intelligence applications in operations, robotics, and data-driven decision-making. Students explore how emerging technologies reshape operational models and organizational strategy. Prerequisite(s): None.

**OPS 457 -- Technology Operations Capstone I (3 credits):** Students/teams select a project addressing real-world technology operations challenges, develop understanding of project scope through research and documentation, prepare a feasibility study, develop project requirements, propose solutions and designs, analyze proposed designs, select final designs, and prepare preliminary design reviews. Students apply proper technology operations concepts and project management. Students/teams submit a final report. Prerequisite(s): Senior standing.

**OPS 458 -- Technology Operations Capstone II (3 credits):** This capstone course challenges students working individually or in small teams on a technology operations or systems management problem requiring technical expertise and operational management acumen. Students integrate learning from business, technology, and operations courses to analyze complex operational challenges and propose comprehensive solutions. A major technical report outlining and analyzing the operational problem and proposing solutions is required. *Note: Course must be completed with a grade of "C" or higher to meet undergraduate graduation requirements.* Prerequisite(s): OPS 457.

### *GENERAL ELECTIVES (12 CREDITS)*

General Electives allow students to broaden their academic experience by selecting courses that complement their major or support individual academic and career interests. Elective courses may be chosen from approved offerings across the University, subject to academic advising and prerequisite requirements.

## **5. General Education Requirements**

The Bachelor of Science in Management of Operational Technology and Systems fully satisfies the general education requirements as defined by the Maryland Higher Education Commission (MHEC) and the standards outlined in COMAR 13B.02.03. General education is intentionally embedded throughout the curriculum to ensure that students develop strong communication skills, critical thinking abilities, ethical reasoning, and an understanding of social, cultural, and civic responsibility relevant to professional practice in technology operations and management.

The program includes 24 credits of general education coursework, consisting of English composition (EN 101 and EN 102), humanities and critical thinking (HU 220, HU 225, HU 331), and social sciences and ethics (SS 351, Social Science Elective, Humanities Elective). These courses support written and oral communication, analytical reasoning, ethical awareness, and an understanding of human and societal factors that influence organizational and industry decision-making.

Quantitative reasoning and scientific literacy are addressed through required coursework in intermediate algebra, algebra and trigonometry, statistics, physics, programming, and applied data tools. Collectively, these requirements ensure that students graduate with a broad intellectual foundation that supports informed business decision-making, professional responsibility, and effective participation in technology operations and management roles across diverse industries.

## **6. Specialized Accreditation and Certification**

The Bachelor of Science in Management of Operational Technology and Systems is not a licensure-based or certification-mandated program and does not seek specialized programmatic accreditation. The program is intentionally structured as a management-focused technology operations degree designed to prepare students for professional roles in technology operations organizations rather than for specific certifications.

The program adheres to all institutional and state requirements governing undergraduate degree programs and is subject to Capitol Technology University's internal academic review, assessment, and continuous improvement processes. Program quality is maintained through curriculum oversight, qualified faculty, industry advisory input, and alignment with regional and national workforce needs.

While the degree itself does not confer eligibility for professional certification, coursework within the program may support preparation for industry-recognized credentials related to project management (PMP, CAPM), operational excellence (Lean, Six Sigma), cloud computing (AWS, Azure, Google Cloud), cybersecurity (CISSP, Security+), supply chain management (CSCP, APICS), or systems thinking certifications. Preparation for such credentials is embedded where appropriate within relevant courses but is not required for degree completion.

## **7. Non-Collegiate Partnerships**

This program does not involve any contractual agreements with another institution or non-collegiate organization. All instruction, curriculum development, academic oversight, and student support services for the Bachelor of Science in Management of Operational Technology and Systems will be provided directly by Capitol Technology University using its existing faculty, facilities, and administrative resources.

## **8. Student Information and Support Services**

Capitol Technology University affirms that students enrolled in the Bachelor of Science in Management of Operational Technology and Systems will be provided with clear, complete, and timely information regarding all aspects of the program, including curriculum structure, course sequencing, degree requirements, faculty interaction, technology expectations, academic support services, and financial policies.

Information will be communicated through the following mechanisms:

a. The program curriculum, course descriptions, credit requirements, and degree expectations will be published in the university academic catalog and maintained on the program webpage.

b. Each student is assigned an academic advisor upon enrollment to support degree planning, prerequisite tracking, and timely progress toward graduation.

- c. Course syllabi clearly outline instructional format, assessment methods, faculty availability, and communication expectations.
- d. Students are informed of assumptions related to computer literacy and required software skills. Any required technical equipment is communicated in advance.
- e. Canvas serves as the university's official learning management system and is used to deliver course materials, manage assignments, facilitate communication, and provide feedback.
- f. Academic support services, including tutoring, library resources, writing assistance, and career development services, are available and described in the student handbook, academic catalog, and university website.
- g. Information regarding tuition, fees, billing procedures, payment plans, and financial aid is provided by the Business Office and Financial Aid Office.

## **9. Advertising and Recruitment Materials**

Capitol Technology University affirms that all advertising, recruiting, and admissions materials related to the Bachelor of Science in Management of Operational Technology and Systems will clearly and accurately represent the program, its curriculum, intended outcomes, and the student services available.

The Office of Marketing and Communications works in collaboration with the Office of Admissions and the academic department to ensure that all promotional and recruitment materials are:

- a. Factually accurate and reflective of the approved curriculum and degree requirements.
- b. Consistent with the university's mission and commitment to academic integrity.
- c. Reviewed and updated regularly to reflect program or policy changes.

Recruitment materials---including the university website, digital and print media, social media content, and admissions presentations---will provide transparent information regarding program objectives, credit requirements, instructional modalities, technology expectations, academic support opportunities, and tuition and financial aid options.

Admissions counselors and faculty involved in recruitment activities will receive program-specific training to ensure consistent, accurate communication during outreach efforts and recruitment events.

## **F. Articulation and Transfer Pathways**

Capitol Technology University maintains articulation and partnership agreements that support student transfer, degree completion, and program collaboration. The Bachelor of Science in Management of Operational Technology and Systems is intentionally designed to be transfer-friendly and will leverage existing articulation agreements with Maryland and regional institutions offering associate degrees in technology, business, operations, supply chain management, and related fields.

As articulation agreements are updated and expanded, the program will be formally added to Capitol Technology University's portfolio of articulated undergraduate programs. Existing agreements with community colleges and workforce training providers provide a foundation for transfer pathways into the program, particularly for students completing associate degrees with technology operations, management, or business focus.

In addition, Capitol Technology University maintains active outreach and collaboration with secondary education partners and workforce development initiatives. These partnerships support early exposure to technology operations and business career pathways and facilitate student transitions from secondary education into postsecondary technology operations programs.

Transfer pathway documentation and articulation agreements will be submitted as supporting materials as they are finalized.

## **G. Faculty Resources and Qualifications**

The Bachelor of Science in Management of Operational Technology and Systems is supported by a highly qualified and interdisciplinary faculty team. Collectively, these faculty bring expertise in operations management, technology systems, IT management, supply chain operations, business management, economics, accounting, project management, quantitative analysis, and general education.

The program benefits from faculty with strong academic credentials and substantial industry experience. Faculty teaching in the program have professional backgrounds in operations management, technology systems implementation, organizational leadership, and management providing instruction grounded in both theory and real-world application.

Instruction in foundational business, quantitative, and general education coursework is supported by existing full-time faculty across the university. Upper-division technology operations and systems courses are delivered by faculty with direct experience in operations, technology systems, and management, ensuring appropriate depth, continuity, and specialization throughout the curriculum.

## **H. Library Resources**

Capitol Technology University's Puente Library provides comprehensive support for the academic and research needs of students and faculty in the proposed Bachelor of Science in Management of Operational Technology and Systems program. The library offers a broad range of physical and digital resources regularly evaluated and updated to ensure alignment with program learning objectives and curriculum content in operations management, technology systems, supply chain management, project management, and organizational leadership.

Students enrolled in the Technology Operations and Systems Management program have access to extensive collections of operations, management, and technology-focused journals, eBooks, reference materials, and industry publications. Key electronic resources include databases such as ProQuest, JSTOR, EBSCO Business Source, ScienceDirect, and SpringerLink, providing full-text access to scholarly articles, industry reports, case studies, and applied research related to operations management, technology systems, supply chain optimization, and organizational leadership.

The library provides access to industry-specific resources essential to operations studies, including publications from the Council of Supply Chain Management Professionals (CSCP), Project Management Institute (PMI), American Society for Quality (ASQ), and operations research organizations. These resources directly support coursework in operations management, supply chain operations, quality management, project management, and capstone projects.

Textbooks and supplemental instructional materials supporting both lower-division and upper-division coursework are available in print and electronic formats, ensuring flexibility and accessibility for traditional students, transfer students, and working professionals.

To ensure continued adequacy of library resources, the University's academic leadership collaborates closely with library staff to assess program-specific needs and support targeted acquisitions. Faculty teaching in the Technology Operations and Systems program may submit requests for new books, journals, case studies, databases, or instructional materials. These requests are reviewed and prioritized based on curriculum development, enrollment growth, and evolving industry trends within the technology operations sector.

Library services include online research assistance, interlibrary loan, citation management support, and instruction in information literacy. These services ensure that students develop the skills necessary to locate,

evaluate, and apply scholarly, industry, and professional information effectively throughout their academic studies and professional careers.

Capitol Technology University affirms that the Puente Library's collections, services, and acquisition processes are fully adequate to support the launch and sustained operation of the Bachelor of Science in Management of Operational Technology and Systems program.

## **I. Physical Facilities and Infrastructure**

Capitol Technology University affirms that it possesses the physical facilities, infrastructure, and instructional equipment necessary to successfully launch and sustain the proposed Bachelor of Science in Management of Operational Technology and Systems program. The University maintains modern instructional classrooms designed to support lecture-based, discussion-oriented, and applied learning. These classrooms are equipped with multimedia projection systems, instructional technology, wireless connectivity, and collaborative learning tools that support business, management, and technology-focused coursework.

The Technology Operations and Systems program will primarily utilize existing general-purpose classrooms and instructional spaces supporting courses in business, management, technology, and operations. These facilities are currently used to support related programs and are sufficient to meet instructional needs without additional capital investment at launch.

Instructional support is enhanced through access to technology-related resources, including simulation-based instructional tools, operations management software, data analytics platforms, and project management applications. These tools support applied learning in areas such as systems integration, operations optimization, supply chain management, and technology operations analysis.

Faculty and staff offices are available and adequately equipped to support academic advising, student mentoring, faculty collaboration, curriculum development, and program administration. Office space allocation is reviewed periodically to ensure alignment with enrollment levels and faculty assignments.

The University's information technology infrastructure supports instructional delivery, student services, and faculty needs across all modalities. This infrastructure includes campus-wide wireless connectivity, networked computer systems, secure data access, and technical support services that ensure reliable and effective instructional operations.

## **I. Adequacy of Faculty Resources**

Provide a brief narrative demonstrating the quality of program faculty. Include a summary list of faculty with appointment type, terminal degree title and field, academic title/rank, status (full-time, part-time, adjunct), and the course(s) each faculty member will teach in the proposed program.

The Bachelor of Science in Management of Operational Technology and Systems is supported by a highly qualified and interdisciplinary faculty team consisting of full-time faculty, professors of practice, and experienced adjunct instructors. Collectively, these faculty bring expertise in technology operations management, systems integration, information technology, cybersecurity, supply chain and logistics, project management, data analytics, business and organizational management, mathematics, and the physical sciences. This breadth of expertise ensures that students receive a rigorous, applied education that integrates operational, technological, and managerial perspectives aligned with workforce expectations and evolving industry needs.

The program is administered within the School of Engineering and Technology and leverages existing faculty resources across engineering, computing, and business disciplines. Faculty teaching in the program possess strong academic credentials combined with substantial industry experience in technology operations, systems implementation, infrastructure management, process optimization, and organizational leadership. This combination supports effective instruction across foundational coursework, upper-division technology

operations and systems courses, and the senior capstone sequence, ensuring adequate instructional capacity and continuity for program delivery.

## **Faculty Resources**

### **Full-Time Faculty**

**Dr. Andrew Mehri** holds a Ph.D. in Computer Science, with additional graduate training in information architecture and electronics engineering. He brings leadership experience in technical and vocational education and teaches courses in quantitative tools, data analysis, and technical systems that support technology operations and managerial decision-making.

**Prof. Amelia Wear** is an Instructor and Lead Systems Engineer at Wabtec. She holds a B.S. in Mechanical Engineering and an M.S. in Software Engineering and brings industry expertise in systems integration, controls, and agile development to instruction in applied systems design and technology operations.

**Dr. Jeff Chi** holds a Ph.D. in Project Management and supports instruction in systems engineering and project management. His industry experience includes project integration, planning, and sustainability, contributing to applied coursework aligned with operational leadership.

**Dr. Tahani Baabdullah** holds a Ph.D. in Computer Science and is an expert in artificial intelligence and machine learning. Her research and industry experience span deep learning, cybersecurity, blockchain-integrated AI systems, and ethical AI applications, with extensive use of Python, TensorFlow, and PyTorch in real-world problem domains.

**Dr. Nisma M. Omar** holds a Ph.D. in Analytical Chemistry and teaches foundational science and quantitative reasoning courses. Her instruction supports scientific literacy, analytical thinking, and technical communication essential for technology-driven operational environments.

**Prof. Jeff Volosin** holds a B.S. in Space Science from Florida Institute of Technology and serves as Department Head of Astronautical and Space Engineering. He brings more than 38 years of industry and NASA experience in spacecraft systems, mission operations, and autonomous systems, supporting instruction in systems integration and applied technology operations.

**Dr. Kellep Charles** holds a Ph.D. in Cybersecurity from Capitol Technology University, an M.S. in Telecommunication Management from the University of Maryland University College, and a B.S. in Computer Science from North Carolina Agricultural and Technical State University. He teaches courses in cybersecurity, artificial intelligence, and secure technology systems.

**Dr. Gregory P. Behrmann** holds a Ph.D. in Mechanical Engineering from The Catholic University of America. He teaches courses in robotics, engineering mechanics, and systems engineering, with applied research interests in intelligent systems and human-technology interaction.

### **Professors of Practice**

**Prof. Mary Smikle Peoples** is a Professor of Practice in Business and Management with more than 30 years of experience in higher education administration, financial aid leadership, and business operations. Her professional background includes senior administrative roles and applied experience in financial services, program administration, and organizational management.

**Dr. Ron Martin** is a Professor of Practice with extensive expertise in critical infrastructure protection, industrial control systems security, and identity, credential, and access management (ICAM). His professional experience includes senior leadership roles with the U.S. Army and federal agencies, as well as active participation in national and international standards organizations. His applied government and industry experience supports instruction in technology operations, systems integration, and cybersecurity.

### **Adjunct Faculty**

**Prof. Megan Miskovish** holds an M.S. in Education and teaches English composition and humanities courses. Her instruction supports the development of written communication, critical thinking, and professional writing skills essential for effective leadership in technology operations and management.

### 3. Course–Faculty Assignment Matrix

The following matrix summarizes faculty instructional responsibility for courses in the Management of Operational Technology Systems program. Full-time and adjunct faculty assignments ensure coverage of all program components while supporting continuity and instructional quality.

<b>Course Number &amp; Title</b>	<b>Faculty Assignment</b>	<b>Appointmnet Type</b>
<b>BUS 114 – Advanced Excel</b>	Dr. Andrew Mehri	Full Time Faculty
<b>BUS 174 – Introduction to Business and Management</b>	Prof. Mary Smikle Peoples	Professor of Practice
<b>BUS 200 – Business Communications</b>	Prof. Amelia Wear	Full Time Faculty
<b>BUS 270 – Financial Accounting I</b>	Prof. Mary Smikle Peoples	Professor of Practice
<b>BUS 275 – Human Resource Management</b>	Prof. Mary Smikle Peoples	Professor of Practice
<b>BUS 282 – Foundations of Economics</b>	Dr. Andrew Mehri	Full Time Faculty
<b>BUS 283 – Managerial Accounting</b>	Prof. Mary Smikle Peoples	Professor of Practice
<b>BUS 301 – Project Management</b>	Dr. Jeff Chi	Full Time Faculty
<b>BUS 372 – Financial Management</b>	Dr. Ron Martin	Professor of Practice
<b>BUS 376 – Marketing Principles</b>	Prof. Mary Smikle Peoples	Professor of Practice
<b>BUS 386 – Organizational Theory &amp; Behavior</b>	Dr. Gregory P. Behrmann	Full Time Faculty
<b>BUS 410 – Strategic Management</b>	Dr. Jeff Chi	Full Time Faculty
<b>CS 120 – Introduction to Programming Using Python</b>	Dr. Tahani Baabdullah	Full Time Faculty
<b>EN 101 – English Communications I</b>	Prof. Megan Miskovish	Adjunct Faculty
<b>EN 102 – English Communications II</b>	Prof. Megan Miskovish	Adjunct Faculty
<b>HU 220 – Critical Thinking</b>	Dr. Andrew Mehri	Full Time Faculty
<b>HU 225 – Writing for the Internet</b>	Prof. Megan Miskovish	Adjunct Faculty
<b>HU 331 – Arts and Ideas</b>	Prof. Megan Miskovish	Adjunct Faculty
<b>MA 112 – Intermediate Algebra</b>	Dr. Nisma Omar	Full Time Faculty
<b>MA 114 – Algebra and Trigonometry</b>	Dr. Nisma Omar	Full Time Faculty
<b>MA 128 – Introduction to Statistics</b>	Dr. Nisma Omar	Full Time Faculty
<b>OPS 101 – Introduction to Operations Management</b>	Prof. Jeff Volosin	Full Time Faculty
<b>OPS 141 – Systems Thinking and Design</b>	Prof. Jeff Volosin	Full Time Faculty
<b>OPS 143 – Cloud Computing Architecture</b>	Dr. Kellep Charles	Full Time Faculty
<b>OPS 201 – Enterprise Systems Integration</b>	Dr. Ron Martin	Professor of Practice
<b>OPS 202 – Operations Optimization and Analytics</b>	Dr. Gregory P. Behrmann	Full Time Faculty
<b>OPS 251 – Technology Infrastructure Fundamentals</b>	Dr. Jeff Chi	Full Time Faculty
<b>OPS 254 – Supply Chain Operations Management</b>	Dr. Ron Martin	Professor of Practice
<b>OPS 256 – Technology Operations Security</b>	Dr. Kellep Charles	Full Time Faculty

<b>OPS 290 – Operational Technology and Industry 4.0</b>	Prof. Jeff Volosin	Full Time Faculty
<b>OPS 457 – Technology Operations Capstone I</b>	Prof. Amelia Wear	Full Time Faculty
<b>OPS 458 – Technology Operations Capstone II</b>	Dr. Ron Martin	Professor of Practice
<b>PH 201 – General Physics I</b>	Dr. Gregory P. Behrmann	Full Time Faculty
<b>SS 351 – Ethics</b>	Prof. Jeff Volosin	Full Time Faculty

#### 4. Faculty Development and Training

Capitol Technology University is committed to continuous faculty development through its Center for Innovation in Teaching and Learning (CITL). The CITL provides structured professional development opportunities to ensure faculty remain current with evidence-based pedagogical practices and emerging technologies relevant to technology operations, systems management, and applied professional education.

##### a. Pedagogy aligned with student needs

Faculty receive training in inclusive, student-centered instructional approaches, with emphasis on active learning, project-based instruction, applied case studies, and team-based problem solving. These pedagogical strategies are particularly important in the Management of Operational Technology and Systems program, where students integrate operational, technological, managerial, ethical, and organizational considerations into real-world decision-making and systems implementation. Faculty development initiatives also support instruction for diverse learner populations, including adult learners, military-affiliated students, transfer students, and underrepresented groups in technology and management fields.

##### b. Learning management system support

The University uses Canvas as its learning management system. Faculty receive Canvas training during onboarding and have access to ongoing workshops, tutorials, and helpdesk support. Training includes effective use of Canvas tools for assignments, rubrics, assessments, analytics, and student engagement to support applied learning and continuous improvement.

##### c. Distance education

The Management of Operational Technology and Systems program is currently offered in an in-person format. If distance or hybrid delivery is implemented in the future, faculty will receive dedicated training in online instructional design, accessibility, and best practices for virtual learning environments, in accordance with institutional policies and Maryland Higher Education Commission (MHEC) guidelines.

## J. Financial Resources

**Table 1: Program Resources**

<b>Resource Categories</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
1. Reallocated Funds	\$0	\$0	\$0	\$0	\$0
2. Tuition/Fee Revenue	\$350,060	\$707,940	\$1,065,072	\$1,449,072	\$1,851,644
a. Number of F/T Students	8	16	24	32	40
b. Annual Tuition/Fee Rate	\$27,808	\$28,503	\$29,216	\$29,946	\$30,695
c. Total F/T Revenue	\$222,464	\$465,048	\$701,184	\$958,272	\$1,227,800
d. Number of P/T Students	7	13	19	25	31
e. Credit Hour Rate	\$1,519	\$1,557	\$1,596	\$1,636	\$1,677
f. Annual Credit Hours	12	12	12	12	12
g. Total P/T Revenue	\$127,596	\$242,892	\$363,888	\$490,800	\$623,844
3. Grants, Contracts and Other External Sources	\$0	\$0	\$0	\$0	\$0
4. Other Sources	\$0	\$0	\$0	\$0	\$0
<b>TOTAL (Add 1--4)</b>	<b>\$350,060</b>	<b>\$707,940</b>	<b>\$1,065,072</b>	<b>\$1,449,072</b>	<b>\$1,851,644</b>

**Table 2: Program Expenditures**

<b>Expenditure Category</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
1. Faculty (b + c)	\$113,468	\$155,071	\$238,421	\$325,843	\$417,486
a. # FTE	1.5	2	3	4	5
b. Total Salary	\$94,557	\$129,226	\$198,684	\$271,536	\$347,905
c. Total Benefits (20%)	\$18,911	\$25,845	\$39,737	\$54,307	\$69,581
2. Administrative Staff (b + c)	\$5,942	\$6,091	\$6,244	\$6,400	\$6,559
a. # FTE	0.08	0.08	0.08	0.08	0.08
b. Total Salary	\$4,952	\$5,076	\$5,203	\$5,333	\$5,466
c. Total Benefits	\$990	\$1,015	\$1,041	\$1,067	\$1,093
3. Support Staff (b + c)	\$59,885	\$92,076	\$125,837	\$161,230	\$198,313
a. # FTE	1	1.5	2	2.5	3
b. Total Salary	\$49,905	\$76,730	\$104,864	\$134,358	\$165,261
c. Total Benefits	\$9,980	\$15,346	\$20,973	\$26,872	\$33,052
4. Technical Support and Equipment	\$840	\$1,425	\$2,320	\$3,145	\$4,140
5. Library	\$0	\$0	\$0	\$0	\$0
6. New or Renovated Space	\$0	\$0	\$0	\$0	\$0
7. Other Expenses	\$5,850	\$14,210	\$25,370	\$39,330	\$56,090
<b>TOTAL (Add 1--7)</b>	<b>\$185,985</b>	<b>\$268,873</b>	<b>\$398,192</b>	<b>\$535,948</b>	<b>\$682,588</b>

**Narrative Rationale**

a. **Reallocated Funds:** No reallocated funds are required. The program leverages existing academic infrastructure, instructional spaces, and faculty expertise.

b. **Tuition and Fee Revenue:** Projections are based on conservative enrollment assumptions, beginning with 8 full-time and 7 part-time students in Year 1, growing to 40 full-time and 31 part-time students by Year 5. Tuition rates reflect current published rates with an assumed annual increase of approximately 2.5 percent.

c. **Faculty Costs:** Faculty costs include salaries and benefits (estimated at 20%) for instructors teaching operations management, technology systems, supply chain, project management, business, and capstone courses. Staffing increases from 1.5 FTE in Year 1 to 5 FTE by Year 5, reflecting enrollment growth.

d. **Administrative and Support Staff:** Administrative support (0.08 FTE) handles advising coordination and scheduling. Support staff assist with academic support and instructional support.

e. **Technical Support and Equipment:** These costs cover instructional software, operations management databases, project management tools, and instructional technology used in technology operations and management courses.

f. **Library:** No additional library expenditures are required. Existing resources adequately support the program.

g. **Facilities:** No new construction or renovation is required.

h. **Other Expenses:** Include marketing, faculty development, program assessment, and continuous improvement activities.

**K. Program Evaluation****1. Assessment Procedures**

Capitol Technology University has established institutional processes for evaluating the quality and effectiveness of all academic programs, including the Bachelor of Science in Management of Operational Technology and Systems. Courses will be evaluated at the conclusion of each semester through standardized student course evaluations assessing instructional effectiveness, course organization, learning resources, and perceived achievement of course learning outcomes.

Faculty performance is evaluated using multiple measures, including student feedback, peer observations, course portfolio review, and annual performance evaluations. These evaluations emphasize instructional quality, engagement with students, alignment of course content with program objectives, and contributions to curriculum development and continuous improvement.

Student learning outcomes (SLOs) are assessed at both the course and program levels. Faculty teaching courses mapped to specific program outcomes collect assessment data using exams, case studies, applied projects, presentations, and operations-focused assignments. The two-semester Technology Operations Capstone (OPS 457 and OPS 458) serves as a primary direct assessment of students' ability to integrate technology operations knowledge, management principles, and professional skills.

## **2. Program Effectiveness Evaluation**

The educational effectiveness of the Bachelor of Science in Management of Operational Technology and Systems will be evaluated using a combination of quantitative and qualitative measures aligned with Capitol Technology University's institutional assessment framework.

- a. **Assessment of Student Learning Outcomes:** The program will maintain a systematic process for mapping, measuring, and reviewing learning outcomes related to operations management, technology systems, strategic thinking, communication, teamwork, and ethical decision-making. Data from embedded course assessments, operations case analyses, applied projects, and the capstone sequence will be collected each semester and analyzed annually.
- b. **Student Retention and Graduation Rates:** Program-level retention, progression, and graduation data will be monitored regularly to ensure students advance effectively through the curriculum.
- c. **Student and Faculty Satisfaction:** Student satisfaction will be evaluated through course evaluations and program surveys. Faculty satisfaction will be assessed through annual reviews.
- d. **Cost-Effectiveness:** The Business and Finance Division will conduct periodic reviews of program enrollment, instructional costs, and resource utilization.
- e. **Industry and Advisory Input:** Input from industry partners and advisory board members will be incorporated into periodic program reviews to ensure continued alignment with workforce needs and employer expectations.

## **L. Minority Student Achievement and Access**

The proposed Bachelor of Science in Management of Operational Technology and Systems aligns closely with Maryland's goals to promote minority student access, achievement, and educational equity. Capitol Technology University maintains a strong institutional commitment to diversity, inclusion, and equitable access to career-oriented education in STEM and technology-related fields where minority participation has historically been limited.

The program is intentionally designed to expand access to high-demand technology operations and digital transformation careers for students from underrepresented and historically marginalized populations, including African American, Hispanic/Latino, female, first-generation college students, military veterans, and adult learners.

The Bachelor of Science in Management of Operational Technology and Systems supports minority student access and success through:

- Transfer-friendly pathways and articulation agreements with Maryland community colleges serving diverse student populations.
- Comprehensive academic advising and mentoring, supported by early alert and intervention systems.
- Financial access initiatives, including institutional scholarships, federal and state financial aid, military benefits, and flexible enrollment options.
- Applied and experiential learning opportunities that research indicates improve engagement and completion rates for students from diverse backgrounds.
- Inclusive instructional practices, supported by faculty development focused on culturally responsive teaching and Universal Design for Learning (UDL).

Through these combined efforts, the program directly supports Maryland's minority student achievement priorities by expanding access to high-demand technology operations careers and fostering student persistence through structured academic support and inclusive educational practices.

## **M. Relationship to Low Productivity Programs**

The proposed Bachelor of Science in Management of Operational Technology and Systems is not a direct continuation, replacement, or restructuring of any low-productivity program identified by the Maryland Higher Education Commission. Rather, the program represents a new, workforce-responsive academic offering addressing growing demand for professionals with technology operations and systems management expertise.

While not formally tied to a designated low-productivity program, the program is structured to optimize the use of existing institutional resources in a fiscally responsible manner by leveraging existing faculty expertise, utilizing shared instructional facilities, relying on existing administrative and support services, and enhancing overall academic productivity by attracting new student populations.

## **N. Distance Education Eligibility and Compliance**

Capitol Technology University is fully authorized by the Maryland Higher Education Commission (MHEC) to offer distance education programs. The university has extensive experience delivering online and hybrid instruction at both undergraduate and graduate levels.

Capitol Technology University is an approved participant in the National Council for State Authorization Reciprocity Agreements (NC-SARA), authorizing the institution to offer distance education to students in other SARA member states.

Capitol Technology University affirms that it complies with the Council of Regional Accrediting Commissions (C-RAC) guidelines for distance education. Institutional policies, instructional practices, and support services ensure that distance-delivered coursework meets the same academic standards as on-campus instruction.

The Bachelor of Science in Management of Operational Technology and Systems is designed to be delivered primarily in an on-campus format. However, selected courses—particularly in general education, business, and management areas—may be offered in online or hybrid formats to support transfer students and working

professionals. All distance-delivered components will adhere fully to institutional policies and C-RAC guidelines.

## **O. Conclusion**

The proposed Bachelor of Science in Management of Operational Technology and Systems represents a strategic response to critical workforce demand in technology operations, systems management, and organizational leadership. The program integrates proven academic strengths at Capitol Technology University with industry-validated curriculum that prepares graduates for immediate employment and long-term career advancement in one of the fastest-growing sectors of the economy.

Through rigorous academic preparation, applied learning experiences, and comprehensive support services, Capitol Technology University is committed to producing graduates who are equipped to meet the evolving demands of organizations navigating technological change and operational complexity. This program strengthens Maryland's capacity to develop skilled technology operations professionals while advancing institutional mission and strategic goals.