



June 11, 2019

Dr. James D. Fielder, Jr.
Secretary of Maryland Higher Education
Maryland Higher Education Commission
6 N. Liberty Street
Baltimore, MD 21201

Dear Dr. Fielder,

Capitol Technology University is requesting approval to offer a **Master of Science (M.S.) in Construction Safety**. The degree curriculum will be taught using a significant number of existing faculty at our university and will be supported by the development of new courses for the **M.S. in Construction Safety**. The mission of Capitol Technology University is to provide a practical education in engineering, computer science, information technology, and business that prepares individuals for professional careers and affords the opportunity to thrive in a dynamic world. A central focus of the university's mission is to advance practical working knowledge in areas of interest to students and prospective employers within the context of Capitol Tech's degree programs. The university believes that a **M.S. in Construction Safety** is consistent with this mission.

There is a growing requirement within the construction industry for highly trained construction safety professionals at every level. This program is in response to that need. The **M.S. in Construction Safety** degree is primarily for experienced construction safety personnel who desire to advance in their careers by earning a master's degree, but is also designed to accommodate those desiring to enter the field.

To respond to needs of the construction safety industry, we respectfully submit for approval a Master of Science (M.S.) in Construction Safety. The required proposal is attached as well as the letter from me as university president confirming the adequacy of the university's library to serve the needs of the students in this degree.

Respectfully,

A handwritten signature in blue ink, appearing to read "B.L. Sims".

Bradford L. Sims, PhD



June 11, 2019

Dr. James D. Fielder, Jr.
Secretary of Maryland Higher Education
Maryland Higher Education Commission
6 N. Liberty Street
Baltimore, MD 21201

Dear Dr. Fielder,

This letter is in response to the need for confirmation of the adequacy of the library of Capitol Technology University to support the proposed **Master of Science (M.S.) in Construction Safety**. As president of the university, I confirm that the library resources, including support staff, are more than adequate to support the **M.S. in Construction Safety**. In addition, the university is dedicated to, and has budgeted for, continuous improvement of its library resources.

Respectfully,

A handwritten signature in blue ink, appearing to read 'BLS', with a long horizontal stroke extending to the right.

Bradford L. Sims, PhD



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 New | <input type="radio"/> Substantial Change to a Degree Program |
| <input type="radio"/> Area of Concentration New | <input type="radio"/> Substantial Change to an Area of Concentration |
| <input type="radio"/> Degree Level Approval New | <input type="radio"/> Substantial Change to a Certificate Program |
| <input type="radio"/> 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 |

Department Proposing Program	Department of Business and Information Sciences		
Degree Level and Degree Type	Master of Science (M.S.)		
Title of Proposed Program	M.S. in Construction Safety		
Total Number of Credits	121		
Suggested Codes	HEGIS: 1299	CIP: 51	
Program Modality	<input type="radio"/> On-campus <input checked="" type="radio"/> Distance Education (<i>fully online</i>) <input type="radio"/> Both		
Program Resources	<input checked="" type="radio"/> Using Existing Resources <input type="radio"/> Requiring New Resources		
Projected Implementation Date	<input checked="" type="radio"/> Fall <input type="radio"/> Spring <input type="radio"/> Summer Year: 2019		
Provide Link to Most Recent Academic Catalog	URL: https://www.captechu.edu/current-students/academic-resources		
Preferred Contact for this Proposal	Name:	Professor Soren Ashmall	
	Title:	Director, Assessment & Accreditation	
	Phone:	(571) 332-4344	
	Email:	spashmall@captechu.edu	
President/Chief Executive	Type Name:	Dr. Bradford Sims	
	Signature:		Date: 6-11-19
Approval/Endorsement by Governing Board	Type Name:	Dr. Bradford Sims	
	Signature:		Date: 6-11-2019

Revised 5/15/18

PROPOSAL FOR:

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



**CAPITOL
TECHNOLOGY
UNIVERSITY**

¹⁹²⁷
Institution Submitting Proposal

Fall 2019
Projected Implementation Date

Master of Science
Award to be Offered

Construction Safety
Title of Proposed Program

1299
Suggested HEGIS Code

51.2206
Suggested CIP Code

Business and Information Sciences
Department of Proposed Program

Professor Hashem Tabrizi
Name of Department Head

Prof. Soren Ashmall
Director, Assessment
and Accreditation

spashmall@captechu.edu
Contact E-Mail Address

571-332-4344
Contact Phone Number

[Handwritten Signature] 6-11-19
Signature and Date

President/Chief Executive Approval

JUNE 19, 2019
Date

Date Endorsed/Approved by Governing Board

**Proposed Master of Science in Construction Safety
Department of Business and Information Sciences
Capitol Technology University
Laurel, Maryland**

A. Centrality to Institutional Mission and Planning Priorities:

- 1. Provide a description of the program, including each area of concentration (if applicable), and how it relates to the institution's approved mission.**

Master of Science in Construction Safety Program Description:

The **Master of Science (M.S.) degree in Construction Safety** emphasizes the technical, managerial and leadership skills required to implement proactive safety and risk reduction initiatives associated with construction activities performed in a variety of environments (i.e., large construction sites, capital projects, facilities, government and military installations). This degree program focuses on the skills required to plan, direct and implement construction safety programs, and to ensure the development of safe and healthy construction work teams that proactively respond to and mitigate hazards, champion regulatory compliance, foster safety culture and communication, and implement sound risk management techniques.

The **M.S. in Construction Safety** provides an opportunity for those currently in the construction field and construction related industries to gain skills in safety that lead to management positions in construction safety as well as the required safety knowledge needed when applying for the credentialing through the Board of Certified Safety Professionals (BCSP). The Board of Certified Safety Professionals indicates that it is the "Gold Standard" of safety certifications around the world, protecting and developing workers, informing the development of international safety, health and environmental standards, and contributing to the international advancement of the safety profession. The Board of Certified Safety Professionals also offers organizations a Safety Trained Supervisor Construction (STSC) sponsorship program. The STSC provides a competitive edge and helps to promote safety awareness and training.

According to the Safety, Health, and Environmental (SH&E) Industry 2018 survey conducted by The Board of Certified Safety Professionals (BCSP) and the American Society of Safety Engineers (ASSE), the majority of safety professionals have additionally obtained at least one safety license or certification needed for their employment. Many have obtained multiple safety licenses or certifications.

FINDINGS: Professional Profile

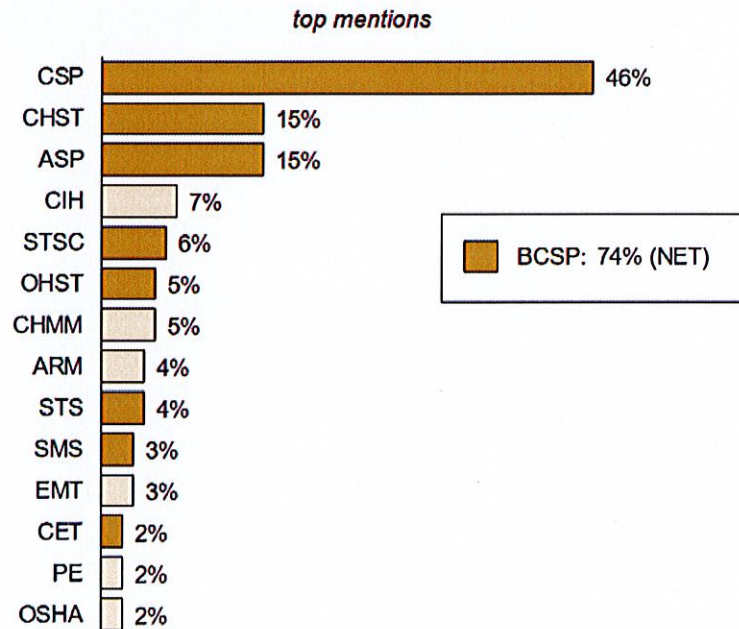
Three in four employed SH&E professionals (74%) have at least one of the eight BCSP licenses or certifications, most commonly a CSP (46%). Among the list of 71 other licenses/certifications, no single license/certification is held by more than 7% of employed respondents.

86% of employed SH&E professionals have at least one license/certification; 26% have multiple.

Licenses/Certifications Held

Which licenses or certifications do you hold?

base: 9,978 employed respondents (multiple answers)



(Source: https://www.assp.org/docs/default-source/default-document-library/bcsp-asse_2018_salary_findings.pdf?sfvrsn=2)

The need for a **M.S. in Construction Safety** is a product of the natural growth in the market for safety individuals. The need for highly trained Occupational Health and Safety professionals is growing at a significant rate, but the supply of Occupational Health and Safety professionals is not keeping up with the demand. According to The Bureau of Labor Statistics Occupational Outlook Handbook, the Job Outlook for Occupational Health and Safety Specialists and Technicians from 2016-2026 is projected to have as fast as average growth of 8% -- a need for 8,600 new Occupational Health and Safety Specialists and Technicians.

(Source: <https://www.bls.gov/ooh/healthcare/occupational-health-and-safety-specialists-and-technicians.htm>).

When the U.S. environmental health and safety market size are looked at by market segment, construction along with the industrial sectors of energy, mining, chemical, and petrochemical are combined account for approximately 75% of the market.

(Source: <https://www.grandviewresearch.com/industry-analysis/environmental-health-and-safety-market/>)

According to the SH&E Industry 2018 survey conducted by The Board of Certified Safety Professionals (BCSP) and the American Society of Safety Engineers (ASSE), 33% of the respondents had obtained a Master degree as part of their career progress.

SH&E Industry
2018 Salary Survey

FINDINGS: Demographics

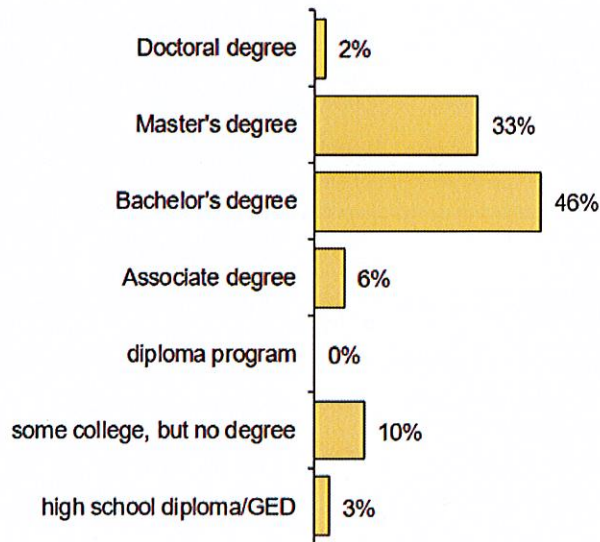
Four in five employed SH&E professionals (81%) have a Bachelor's degree or higher, including 33% with a Master's and 2% with a Doctoral degree.

Nine in ten of those with an Associate degree or higher earned their highest degree/diploma in the U.S. (96%). By country, 99% of those in the U.S., 11% of those in Canada, and 31% of those in other countries earned their highest degree/diploma in the U.S.

Education

What is your highest level of education?

base: 9,978 employed respondents



(Source: https://www.assp.org/docs/default-source/default-document-library/bcsp-asse_2018_salary_findings.pdf?sfvrsn=2)

Relationship to Institutional Approved Mission:

The **M.S. in Construction Safety** is consistent with the University mission to educate individuals for professional opportunities in technology, engineering, computer science, information technology, and business. The University provides relevant learning experiences that lead to success in the evolving global community. Fundamental to the degree programs in the Department of Business and Information Sciences are opportunities to produce highly skilled systems oriented managers who can use the latest technological developments as a leader in their chosen field. The **M.S. in Construction Safety** is consistent with that philosophy. This same philosophy is supported by existing degree programs and learning opportunities. The degree is an integral part of the Strategic Plan for FY 2017-2025. Funding to support the new degree has been included in institutional and departmental budgets for FY 2019-2020 and forecasted budgets going forward.

The **M.S. in Construction Safety** degree will be offered online using the Canvas Learning Management System and Zoom. The result is the convenience required by the 21st Century learner and provides the interaction with faculty and fellow students that is critical to the high-level learning experience. The curriculum provides students real-world opportunities through simulator labs, and the use of the latest technology; as a result, it provides the student with the necessary practical experience the University believes critical to success in the modern safety environment. The degree is consistent with the interdisciplinary nature of the University. This opportunity will be available to all University students.

2. Explain how the proposed program supports the institution's strategic goals and provide evidence that affirms it is an institutional priority.

Capitol Technology University operates on four strategic goals:

- 1. Expand Educational Offerings, Increase Program Completion:** *Capitol Technology University is an institution that offers career-relevant curricula with quality learning outcomes. The strategy includes continuing to expand educational offerings, increasing program completion, and raising learner qualifications and outcomes.*
- 2. Increase Enrollment and Institutional Awareness:** *Capitol will accelerate its goal pursuit to become more globally renowned and locally active through student, faculty and staff activities. Enrollment will grow to 650 undergraduates, 350 masters' students and 250 doctoral candidates.*
- 3. Improve the Utilization of University Resources and Institutional Effectiveness While Expanding Revenue:** *Capitol will likely continue to be 80% financially dependent on student tuition and fees. We plan to enhance our resources by expanding the range and amount of funding from other streams and aligning costs with strategic initiatives.*
- 4. Increase the Number and Scope of Partnerships:** *Capitol's service to our constituents and sources of financial viability both depend upon participation with continuing and new partner corporations, agencies, and schools.*

The proposed **M.S. in Construction Safety** program builds upon the existing areas of graduate study, including the Master of Business Administration (M.B.A.), Master of Science (M.S.) of

Aviation, Master of Science (M.S.) in Aviation Cybersecurity, Master of Science (M.S.) in Critical Infrastructure, Master of Science (M.S.) in Cyber Analytics, Master of Science (M.S.) in Cybersecurity, Master of Science (M.S.) in Computer Science, Master of Science (M.S.) in Information Systems Management, Master of Science (M.S.) in Engineering Technology, Master of Science (M.S.) in Internet Engineering, Technical Master of Business Administration (T.M.B.A.) in Business Analytics and Data Science, and Technical Master of Business Administration (T.M.B.A.) in Cybersecurity, Master of Science (M.S.) in Unmanned and Autonomous Systems Policy and Risk Management, Doctor of Science (D.Sc.) in Cybersecurity, Doctor of Philosophy (Ph.D.) in Aviation, Doctor of Philosophy (Ph.D.) in Business Analytics and Decision Sciences, Doctor of Philosophy (Ph.D.) in Critical Infrastructure, Doctor of Philosophy (Ph.D.) in Manufacturing, Doctor of Philosophy (Ph.D.) in Product Management, Doctor of Philosophy (Ph.D.) in Technology, Doctor of Philosophy (Ph.D.) in Technology/Master of Science (M.S.) Research Methods Combination Program, Doctor of Philosophy (Ph.D.) in Unmanned Systems Applications. The University's graduate degree programs are structured to prepare students to provide leadership and technical expertise to meet the needs of a modern technology and information-dependent organization. The University's programs have been preparing professionals for rapid advances in information and technology, intense global competition, and increasingly complex technological environments for decades. The **M.S. in Construction Safety** will allow students to increase their knowledge in occupational safety and health in the construction field and assume leadership roles in this critical industry.

The new **M.S. in Construction Safety** is fully supported by the University's Vision 2025 and Strategic Plan 2017-2025. Funding to support the degree has been included in forecasted budgets going forward.

The University has active partnerships (e.g., Leidos, Patton Electronics, Lockheed Martin, Northrup Grumman, Cyber Security Forum Initiative, IRS, NCS, NSA and DHS) in the private and public arenas. The **M.S. in Construction Safety** degree will provide new opportunities for partnerships as well as expanded research. The increase in partnerships and placement of our graduates in our partner institutions will serve to expand the University's enrollment and reputation. While additional enrollment will increase financial resources, additional partnerships and grants in the construction safety field will help diversify and increase the University's financial resources.

With a growing demand for leaders within construction safety and a shortage of skilled personnel, the need for better prepared construction safety experts is great. Construction companies, states, and the federal government, are searching for leaders with the necessary knowledge in occupational health and safety; those companies are also looking for a reliable pipeline to fulfill their needs for the future.

Graduates with the **M.S. in Construction Safety** will help fill this need, making the degree extremely relevant now and in the future.

- 3. Provide a brief narrative of how the proposed program will be adequately funded for at least the first five years of program implementation. (Additional related information is required in section L.)**

Capitol Technology University has reallocated funds during Year 1 for support of the program and course development, online support, office materials, travel, professional development, and

initial marketing. There is no substantial impact on the institution because of the reallocation of these funds. The reallocated funds will be recovered after the first year. The program is expected to be self-sustaining after Year 1.

4. Provide a description of the institution's a commitment to:

a) Ongoing administrative, financial, and technical support of the proposed program

The degree is an integral part of the University's Strategic Plan for FY 2017-2025 and forward. Funding to support the ongoing administrative, financial, and technical support of the new degree has been included in institutional and departmental budgets for FY 2019-2020 and forecasted budgets going forward.

b) Continuation of the program for a period of time sufficient to allow enrolled students to complete the program.

Capitol Technology University is fully committed to continuing the **M.S. in Construction Safety** degree program for a period of time sufficient to allow enrolled students to complete the program.

B. Critical and Compelling Regional or Statewide Need as Identified in the State Plan:

1. Demonstrate demand and need for the program in terms of meeting present and future needs of the region and the State in general based on one or more of the following:

a. The need for advancement and evolution of knowledge.

Our nation, state, and society are faced with an urgent need to provide Construction Safety professionals to support the growing demand in occupational health and safety. Leaders in the occupational safety and health industry are facing an ever-increasing need to expand the application of new technology to their industry in order to remain competitive, efficient, and viable now and in the future. Safety companies today depend and thrive on timely, accurate and relevant information. As technology enables the creation and capture of ever-increasing amounts of data, the effective management and understanding of resource needs is becoming an enormous challenge. Safety is no longer just the task of protecting an employee. The era of disposable workers is long gone. Occupational health and safety now protects institutional image, success, profits, and longevity while limiting potential liabilities across the board. Effective leadership in this industry can only be achieved with a holistic approach and the health and safety skills that will be covered in this proposed degree.

b. Societal needs, including expanding educational opportunities and choices for minorities and educationally disadvantaged students at institutions of higher education.

Capitol Technology University is a diverse multiethnic and multiracial institution with a long history of serving minority populations. The University has a 51% minority student population with 7% undisclosed. The Black/African American population is 34%. The university has military/veteran population of 22%. The University also has a 22% female population – a significant percentage given its status as a technology institution. If approved, the proposed **M.S. in Construction Safety** will expand the field of opportunities for minorities and disadvantaged students.

- c. **The need to strengthen and expand the capacity of historically black institutions to provide high quality and unique educational programs.**

While Capitol Technology University is not a historically black institution, the University is a diverse multiethnic and multiracial institution with a long history of serving minority populations. The University has a 51% minority student population with 7% undisclosed. The Black/African American population is 34%. The University has military/veteran population of 22%. The university also has a 22% female population – a significant percentage given its status as a technology institution. If approved, the proposed **M.S. in Construction Safety** will expand the field of opportunities for minorities and disadvantaged students.

Given the substantial minority population of Capitol Technology University, it is reasonable to assert that the **M.S. in Construction Safety** program will add to this base of minority participation in the Occupational Health and Safety profession.

2. **Provide evidence that the perceived need is consistent with the Maryland State Plan for Postsecondary Education.**

The 2017-2021 Maryland State Plan for Postsecondary Education articulates three goals for postsecondary education:

1. Access
2. Success
3. Innovation

Goal 1: Access

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

Maryland residents.”

Capitol Technology University is committed to ensuring equitable access to affordable postsecondary education for all Maryland residents. The University meets its commitment in this arena through its diverse campus environment, admissions policies, and academic rigor.

The Capitol Technology University community is committed to creating and maintaining a mutually respectful environment that recognizes and celebrates diversity among all students, faculty, and staff. The University values human differences as an asset and works to sustain a culture that reflects the interests, contributions, and perspectives of members of diverse groups. The University delivers educational programming to meet the needs of diverse audiences. We also seek to instill those values, understanding, and skills to encourage leadership and service in a global multicultural society.

The University’s commitment to diversity is reflected in its student body. Capitol Technology University has a 51% minority student population with 7% undisclosed. The Black/African American population is 34%. The University has a military/veteran population of 22%. The

University also has a 22% female population – a significant percentage given its status as a technology university.

Achievement gaps: The University provides leveling courses in support of individuals attempting a career change to a field of study not necessarily consistent with their current skills. There are situations where additional graduate and/or undergraduate courses best serve student needs in subject areas. The University makes those courses available.

The University engages in diversity training for its institutional population, including students. Diversity and inclusiveness are built in to the curriculum allowing graduates to operate effectively in a global environment. The University supports multiple diversity enhancing actions, including team projects and grants across degrees. This has proven effective at supporting multiple aspects of diversity.

Capitol Technology University does not discriminate on the basis of race, color, national origin, sex, age, sexual orientation, or handicap in admission, employment, programs, or activities.

Through its academic programs, Capitol Technology University seeks to prepare all of its graduates to demonstrate four primary characteristics:

- **Employability:** The ability to enter and advance in technical and managerial careers, appropriate to their level and area of study, immediately upon graduation.
- **Communications:** Mastery of traditional and technological techniques of communicating ideas effectively and persuasively.
- **Preparation of the Mind:** The broad intellectual grounding in technical and general subjects required to embrace future technical and managerial opportunities with success.
- **Professionalism:** Commitment to life-long learning, ethical practice and participation in professions and communities.

The proposed **M.S. in Construction Safety** program and university financial aid will be available to all Maryland residents who qualify academically for admission. The University has successfully managed supporting Financial Aid for undergraduate students since its founding in 1927.

The **M.S. in Construction Safety** program, with its academic rigor, will produce the highest qualified occupational health and safety professionals for this advancing field of study and employment. The University has a proven record of rigorous high-quality education. The University is fully accredited by three accrediting organizations. In addition to regional accreditation from the Middle States Commission on Higher Education (MSCHE), the University also has specialized accreditation from the International Accreditation Council of Business Education (IACBE) and Accreditation Board for Engineering and Technology (ABET).

The **M.S. in Construction Safety** program is consistent with the MSCHE criteria for regional accreditation of the delivery of high quality higher education as well as the specialized credentialing through the Board of Certified Safety Professionals (BCSP). The BCSP indicates that it is the “Gold Standard” of safety certifications around the world, protecting and developing workers, informing the development of international safety, health

and environmental standards, and contributing to the international advancement of the safety profession.

Goal 2: Success

“Promote and implement practices and policies that will ensure student success.”

The courses for the **M.S. in Construction Safety** will be offered online. The online modality provides learning opportunities for students unable or unwilling to attend an on-campus institution of higher education. The University provides a tuition structure that is competitive with its competitors. The University tuition structure does not differentiate between in-state and out-of-state students. Student services are designed to provide advising, tutoring, virtual job fair attendance, and other activities supporting student completion and employment for both on-ground and online students.

Students receive information through Admissions regarding the cost to attend the University. The information is also publicly available on the University website. Admissions and Financial Aid identify potential grants, scholarships, and state plans for each student to reduce potential student debt. The net cost versus gross costs are identified clearly for the student. Students receive advising from Financial Aid prior to enrolling in classes for the first time. Admissions, Student Services and the Dean of University Academics advise students of the need for academic readiness as well as the degree requirements. A specific success pathway is developed for each student.

The University’s tuition increases have not exceeded 3%. The University also has a tuition cap, which means full-time tuition is capped not to raise more than 1% per year at the rate applied at time of enrollment for undergraduate students. The tuition remains at this rate if the student remains enrolled full-time without a break in attendance.

The University has in place services and learning tools to guide students to successful degree completion. Programs such as Early Alert provide the University’s faculty and staff opportunities for early student intervention on the pathway to graduation. This applies to all students regardless of the mode of course delivery or degree program. Capitol Technology University is also a transfer friendly institution and participates in multiple programs for government and military credit transfer. Capitol Technology University participates in the Articulation System for Maryland Colleges and Universities (ARTSYS) and has multiple transfer agreements with local institutions at all degree levels.

The University has in place services, tutoring, and other tools to help ensure student graduation and successful job placement. The University hosts a career (job) fair twice a year. The University has an online career center available to all students covering such topics as career exploration, resume writing, job search techniques, social media management, mock interviews, and assistance interpreting job descriptions, offers, and employment packages.

The University also works with its advisory boards, alumni, partners, and faculty to help ensure the degrees offered at the University are compatible with long-term career opportunities in support of the state’s knowledge-based economy.

Goal 3: Innovation

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

Capitol Technology University’s past, present, and future is inextricably intertwined with innovation. The University has a long tradition of serving as a platform for the use of new and transformative approaches to delivering higher education. New technology and cutting-edge techniques are blended with proven strategies with the goal of enabling student success in the classroom as well as in a successful career after graduation. As a small institution, Capitol Technology University has the agility to rapidly integrate new technologies into the curriculum to better prepare students for the work environment. The University designs curriculum in alliance with its accreditation and regulating organizations/agencies.

The University also employs online virtual simulations in a game-like environment to teach practical hands-on application of knowledge. For the **M.S. in Construction Safety** this will include simulations and modeling all of the resources involved in the field. The University is engaged with a partner creating high-level virtual reality environments for specific courses in the degree. This use of current technology occurs in parallel with traditional proven learning strategies. These elements of the University online learning environment are purposeful and intended to improve the learning environment for both the student and faculty member. In addition, these elements are intentionally designed to increase engagement, improve outcomes, and improve retention and graduation rates. The University believes that innovation is the key to successful student and faculty engagement.

Example: The University engages its students in ‘fusion’ projects, which allows students to contribute their skills in interdisciplinary projects such as those in our Astronautical Engineering and Cyber Labs. In those labs, students become designers, builders, and project managers (e.g., to send a CubeSAT on a NASA rocket) and data analysts (e.g., to analyze rainforest data for NASA). We are recruiting partners for this proposed degree for that will provide students potential research and integrative learning opportunities in real projects.

C. Quantifiable and Reliable Evidence and Documentation of Market Supply and Demand in the Region and State:

1. Describe potential industry or industries, employment opportunities, and expected level of entry (ex: *mid-level management*) for graduates of the proposed program.

Opportunities exist at all levels of government, private industry, and cross-sector organizations for professionals with the proposed M.S. in Construction Safety. There are currently 3,250 jobs listed on glassdoor.com for under Construction Safety Manager.

(Source: https://www.glassdoor.com/Job/construction-safety-manager-jobs-SRCH_KO0,27_IP3.htm)

Graduates with the **M.S. in Construction Safety** degree will be expected to fill mid-level to senior management positions in existing government organizations and private companies. The job titles include:

- Construction Onsite Safety Manager
- Corporate Safety Manager
- Safety, Security, Health & Environment Manager
- Safety Manager
- Regional Safety Manager
- Facilities Safety Manager
- Health and Safety Specialist
- Construction Safety Specialist
- Safety Coordinator
- Construction Safety Manager
- Site Safety Manger
- Safety Compliance Manager
- Construction Site Safety Manager
- Corporate Safety Program Manager

The SH&E Industry 2018 survey conducted by The Board of Certified Safety Professionals (BCSP) and the American Society of Safety Engineers (ASSE) below indicate typical job title and level within the organization.

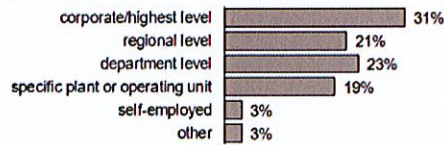


FINDINGS: About Their Work

About a third of employed SH&E professionals (31%) work at the corporate/highest level of their organization. Only 5% are executives (president/CEO/owner/VP/GM); the largest segment (36%) falls into the professional job title category.

Level in Organization

At what level within your organization do you work?
base: 9,978 employed respondents



Job Title

Which of the following best characterizes your job title?
base: 9,978 employed respondents



(Source: https://www.assp.org/docs/default-source/default-document-library/bcsp-asse_2018_salary_findings.pdf?sfvrsn=2)

Graduates will also possess the required knowledge in Construction Safety to serve as a subject matter experts and to form their own commercial occupational health and safety-related company.

Opportunities exist in government, private industry, and cross-sector organizations for professionals with the proposed **M.S. in Construction Safety**. There are currently 17,828 jobs listed on glassdoor.com under the Safety Manager field.

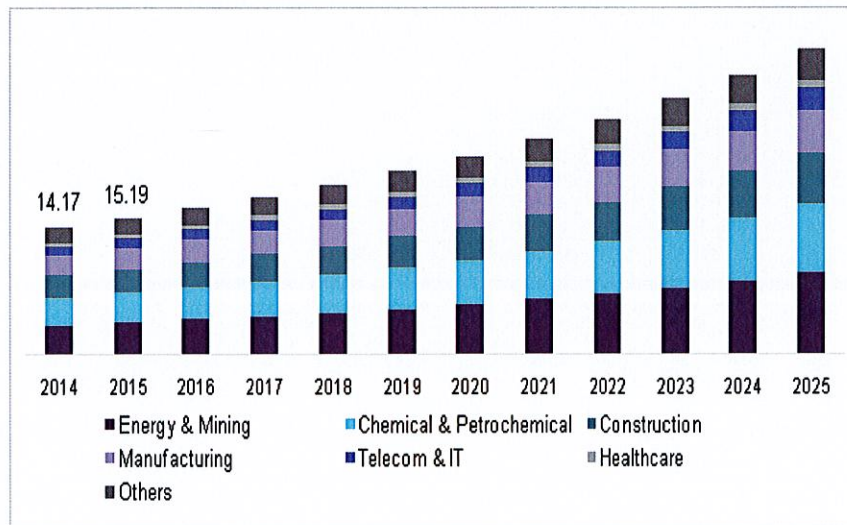
(Source: https://www.glassdoor.com/Job/safety-management-jobs-SRCH_KE0,17.htm)

Industry Insights

The global environmental health and safety market size was USD 49.8 billion in 2015 and is expected to witness significant growth over the forecast period due to rising investments in key end-use segments such as oil & gas, petrochemicals, and construction for ensuring effective compliance.

Increasing risk of environmental damage due to poor compliance by companies operating in the aforementioned industries led to more stringent regulations across industries; this also resulted in increasing investments by companies for the implementation of advanced EHS software and efficient consulting services from EHS specialists and managers, among others. These trends can be observed mainly in industrial economies such as China and the U.S.

U.S. environmental health & safety market, by end-use, 2014 - 2025 (USD billion)



(Source: <https://www.grandviewresearch.com/industry-analysis/environmental-health-and-safety-market>)

2. Present data and analysis projecting market demand and the availability of openings in a job market to be served by the new program.

The recent dramatic growth in the safety industry is increasing the demand for occupational health and safety professionals. The safety industry is thriving as the economy continues to grow and the impact of the recent reduction in the corporate tax rate to 21% becomes evident.

According to the U.S. Bureau of Labor Statistics, demand for safety professionals is expected to grow respectively by 7% - 11% between 2019 and 2022. The primary industries in need of health and safety expertise are the construction and manufacturing sectors. At the same time, many other businesses are also recognizing the need and financial justification for employing health and safety professionals to prevent costly accidents and lawsuits.

A survey conducted in 2011 by the National Institute for Safety and Health (NIOSH) concluded that “the national demand for safety and health services will significantly outstrip the number of men and women with the necessary training, education, and expertise to provide such services”.

Table 3-1 Industries with the largest numbers of occupational health and safety (OHS) specialists covering 75 percent of the total OHS specialist employment

Industries by 4-digit NAICS		OHS specialist employment	Percent of the total OHS specialist employment
NAICS Code	Description		
211100	Oil and Gas Extraction	480	0.93
212100	Coal Mining	220	0.42
212200	Metal Ore Mining	160	0.31
213100	Support Activities for Mining	770	1.49
221100	Electric Power Generation, Transmission and Distribution	940	1.81
311600	Animal Slaughtering and Processing	320	0.62
322100	Pulp, Paper, and Paperboard Mills	160	0.31
324100	Petroleum and Coal Products Manufacturing	310	0.60
325100	Basic Chemical Manufacturing	530	1.02
325200	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	380	0.73
325400	Pharmaceutical and Medicine Manufacturing	370	0.71
331100	Iron and Steel Mills and Ferroalloy Manufacturing	120	0.23
331300	Alumina and Aluminum Production and Processing	140	0.27
331400	Nonferrous Metal (except Aluminum) Production and Processing	180	0.35
331500	Foundries	180	0.35
336300	Motor Vehicle Parts Manufacturing	230	0.44
336400	Aerospace Product and Parts Manufacturing	670	1.29
482100	Rail Transportation	160	0.31
491100	Postal Service	410	0.79
492100	Couriers and Express Delivery Services	360	0.69
541600	Management, Scientific, and Technical Consulting Services	3,370	6.51
541700	Scientific Research and Development Services	1,110	2.14
551100	Management of Companies and Enterprises	1,450	2.80
611300	Colleges, Universities, and Professional Schools	1,650	3.19
622100	General Medical and Surgical Hospitals	3,040	5.87
622300	Specialty (except Psychiatric and Substance Abuse) Hospitals	190	0.37
999100 ^{1/}	Federal Executive Branch (OES Designation)	6,820	13.17
999200 ^{1/}	State Government (OES Designation)	7,330	14.15
999300 ^{1/}	Local Government (OES Designation)	6,790	13.11
Subtotal		38,840	74.98
All Remaining Industries		12,960	25.02
Total		51,800	100.00

Source: 2008 OES survey, Occupational Employment and Wage Estimates, http://www.bls.gov/oes/oes_d1.htm.

Note: 1/ This is not a regular NAICS code. It is a special code assigned by BLS.

The same survey noted that roughly 10% of all health and safety professionals will retire in the next 1-10 years and those remaining will be not be far off since most are 50 years old and above. As summarized by Carl Heinlein, a senior safety consultant at American Contractors Insurance

Group, the population of professionals in the field is aging rapidly, and with so many aging and retiring, the employers seeking competent, qualified individuals are “begging for quality safety folks”.

The SH&E Industry 2018 survey conducted by The Board of Certified Safety Professionals (BCSP) and the American Society of Safety Engineers (ASSE) had 9,978 respondents. The below chart of respondents by NAICS clearly indicates that the highest percentage is in the construction or closely related to construction industries such as oil, gas, chemical, and electrical areas.

SH&E Industry
2018 Salary Survey

FINDINGS: Organization Profile

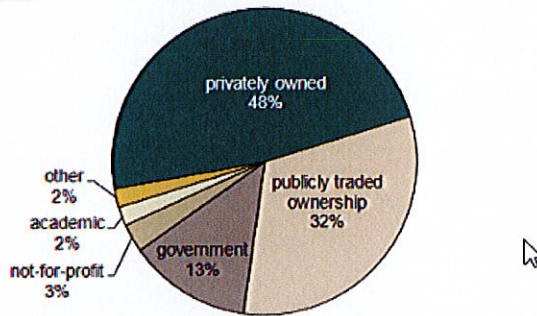
About half of employed SH&E professionals (48%) work for organizations that are privately owned, 32% work for publicly traded companies, 13% are government employees. Very few work for non-profits (3%) or academic institutions (2%).

The NAICS classification for their organizations varies widely, with no more than 9% indicating each.

Nature of Organization

Which of these best describes the nature of your organization?

base: 9,978 employed respondents



Organization's NAICS Classification

What is the primary NAICS classification for the organization at which you worked as of January 1, 2018?

base: 9,978 employed respondents

Top Mentions		
23	Construction (general)	9%
31-33	Manufacturing	9%
524	Insurance carriers and related activities	6%
237	Heavy and civil engineering construction	5%
236	Construction of buildings	5%
211	Oil and gas extraction	5%
325	Chemical manufacturing	4%
5416	Mgmt, scientific, and technical consulting services (including SH&E)	3%
92	Public Administration	3%
2211	Electric power generation, transmission and distribution	3%
6113	Colleges, universities, and professional schools	3%
238	Specialty trade contractors	3%

(Source: https://www.assp.org/docs/default-source/default-document-library/bcsp-asse_2018_salary_findings.pdf?sfvrsn=2)

3. Discuss and provide evidence of market surveys that clearly provide quantifiable and reliable data on the educational and training needs and the anticipated number of vacancies expected over the next 5 years.

The SH&E Industry 2018 survey conducted by The Board of Certified Safety Professionals (BCSP) and the American Society of Safety Engineers (ASSE) below indicate level of education directly correlates to future income growth along with additional safety licenses and certifications that can increase income as well.



FINDINGS: Compensation

Full-time SH&E professionals with at least one of 12 licenses/certifications (ASP, CDGP, CET, CHMM, CHMP, CHST, CIH, CSP, OHST, SMS, STSC, and/or STS) typically earn \$20,000 more per year than those with none of these licenses/certifications (\$100,000 versus \$80,000).

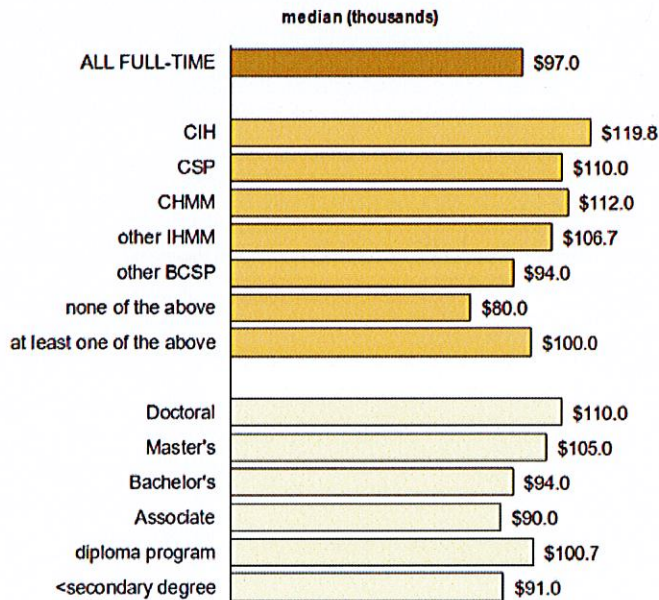
BCSP's CSP certification adds \$13,000 to the median base salary for all full-time SH&E professionals, and it adds \$30,000 to the median compared with the salaries of those who have none of the 12 licenses/certifications.

Similar to certification, formal education also correlates positively with base salary. For example, those with a Doctoral degree typically earn \$16,000 more annually than those with a Bachelor's degree and \$20,000 more than those with an Associate degree.

Base Salary by Licenses/Certifications Held & by Education

As of January 1, 2018, what was your annual base salary (in U.S. dollars)?

base: 9,485 respondents employed full time; those in each segment (fill-in answers)



(Source: https://www.assp.org/docs/default-source/default-document-library/bcsp-asse_2018_salary_findings.pdf?sfvrsn=2)

The projected need for entry-level and mid-level health and safety positions is significant through 2026. According to O*Net Online, the projected growth for Occupational Health and Safety Technicians during 2016-2026 is 10% to 14%. Positions as Occupational Health and Safety Specialists are projected to also grow during 2016-2026 at 5% to 9%.

Wages & Employment Trends

Median wages (2017) \$24.02 hourly, \$49,960 annual

State wages  Local Salary Info

Employment (2016) 18,000 employees

Projected growth (2016-2026) ■■■ Faster than average (10% to 14%)

Projected job openings (2016-2026) 1,100

State trends  Employment Trends

Top industries (2016) Government (18% employed in this sector)
Manufacturing (15%)
Professional, Scientific, and Technical Services (12%)

(Source: <https://www.onetonline.org/link/details/29-9012.00>)

Wages & Employment Trends

Median wages (2017) \$34.51 hourly, \$71,780 annual

State wages  Local Salary Info

Employment (2016) 84,000 employees

Projected growth (2016-2026) ■■■ Average (5% to 9%)

Projected job openings (2016-2026) 5,000

State trends  Employment Trends

Top industries (2016) Government (26% employed in this sector)
Manufacturing (16%)
Professional, Scientific, and Technical Services (11%)

(Source: <https://www.onetonline.org/link/details/29-9011.00>)

Quick Facts: Occupational Health and Safety Specialists and Technicians	
2017 Median Pay ?	\$67,720 per year \$32.56 per hour
Typical Entry-Level Education ?	See How to Become One
Work Experience in a Related Occupation ?	None
On-the-job Training ?	See How to Become One
Number of Jobs, 2016 ?	101,800
Job Outlook, 2016-26 ?	8% (As fast as average)
Employment Change, 2016-26 ?	8,600

(Source: <https://www.bls.gov/ooh/healthcare/occupational-health-and-safety-specialists-and-technicians.htm>)

4. Data showing the current and projected supply of prospective graduates.

Industry watchdog Risk & Insurance recently published an online article, “Safety professionals are retiring, and newcomers cannot fill the gap in numbers or experience,” that highlights the shortage of graduates needed for the industry.

In an October 2011 study prepared for the National Institute for Occupational Safety and Health (NIOSH), for example, concluded that the need for health and safety engineers in the next five years “is substantially higher than the number estimated to be produced from ... training programs.”

In addition, a survey of members by the American Society of Safety Engineers (ASSE) found about 1 percent unemployment in the field...

Some experts... said what organizations are missing are competent professionals who are knowledgeable about both the industry in question, and the resources and tools that professionals can offer.

As Skip Smith, senior director of risk management and insurance at HOA Inc. (Hooters of America) said in a recent Risk Insider article, “But these days, if you’re charged with overseeing a corporate risk management department, it is very difficult to fill a safety position. There are a limited number of qualified candidates with the required educational background, experience and unique set of skills.”

It takes time, obviously, to gain the credentials, experience and even the terminology necessary to make an impact on a worksite. But the clock may be ticking on the profession as baby boomers get ready to retire and the influx of professionals is lower than necessary to fill the gap.”

(source: <http://riskandinsurance.com/in-demand/>)

The SH&E Industry 2018 survey conducted by The Board of Certified Safety Professionals (BCSP) and the American Society of Safety Engineers (ASSE) below indicate the average respondent was 47 years old and has worked as a safety, health and environmental professional for 16 years. When asked how they first entered their practice, the largest proportion of professionals indicated it was by obtaining a degree in the field (31 percent). Almost half of the

respondents (47 percent) directly supervise other staff, with each boss overseeing 21 people on average. Of the respondents, 56% were 47 year old or older.

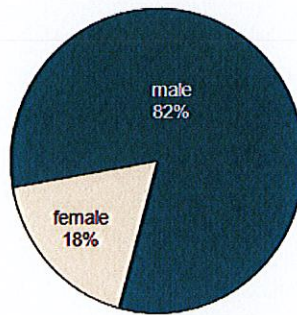
FINDINGS: Demographics

Male employed SH&E professionals outnumber females four to one. The typical age is 47, but a broad range of ages are represented.

Gender

What is your gender?

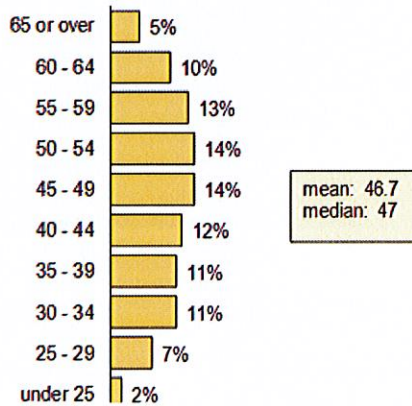
base: 9,978 employed respondents



Age

What is your age?

base: 9,978 employed respondents



(Source: https://www.assp.org/docs/default-source/default-document-library/bcsp-asse_2018_salary_findings.pdf?sfvrsn=2)

D. Reasonableness of Program Duplication

- 1. Identify similar programs in the State and/or same geographical area. Discuss similarities and differences between the proposed program and others in the same degree to be awarded.**

There are no Master of Science (M.S.) in Construction Safety degrees in Maryland or the surrounding region that the University could find. However, three institutions offer master's degrees in much broader area of public health as well as basic construction management. Johns Hopkins University (JHU) offers four degrees in areas much broader areas than Construction Safety. JHU offers a Master of Health Science in Environmental Health (MHS) that focuses on "environmental hazards (not only in air, water and food but also neighborhood and social hazards) affect human health at the individual, population and systems level." JHU offers a Master of Science in Environmental Health (ScM) that focuses on "seeking solutions to environmental health problems through cutting-edge research." JHU offers a Master of Science in Public Health (MSPH) with two tracks. The first track is a MSPH in Occupational and Environmental Hygiene (OEH) that is designed to prepare students to pass the Certified Industrial Hygienist (CIH) examination given by the American Board of Industrial Hygiene. The second track is a MSPH in Toxicity Testing and Human Health Risk Assessment of Environmental Agents (TTHRA). The degree prepares specialists "versed in traditional as well as innovative toxicity testing approaches." These individuals are "positioned to pursue positions in regulatory agencies and the industries they regulate." JHU also offers a Master of Public Health (MPH) that prepares students to "become leading public health professionals capable of addressing current global health problems with multidisciplinary, evidence-based approaches." The University of Maryland, Baltimore (UMB) also has a Master of Public Health (MPH) that is focused on the broad arena of public health. The degree prepares students to create a "change in attitudes, practices and policy to transform lives of the public for the better." Morgan State University (MSU) advertises a Master of Science (M.S.) degree in Construction Management that is focused on "management basics required of the construction industry" as well as "sustainability principles and practices." The MSU program states it is "patterned after the accreditation standards and criteria set by the American Council for Construction Education."

The proposed **M.S. in Construction Safety** to be delivered by Capitol Technology University has a curriculum based around the Board of Certified Safety Professionals (BCPS) Qualified Academic Program criteria of the STSC6 Blueprint that covers the 5 domains of safety as covered in the Safety Trained Supervisor Construction (STSC) exam. The BCSP is a not-for-profit corporation recognized as the leader in high-quality, accredited credentialing for safety, health, and environmental (SH&E) practitioners. The BCSP establishes standards and certifies competency criteria in the professional safety practice. Graduates of this program will be safety professionals -- not constructors, industrial hygienists, or public health officials. Capitol Technology University's proposed M.S. in Construction Safety will be delivered online.

- 2. Provide justification for the proposed program.**

The **M.S. in Construction Safety** program is strongly aligned with the University's strategic priorities and is supported by adequate resources. The new **M.S. in Construction Safety** degree will strengthen and expand upon existing technology, management, and applied engineering degree programs at the University. The degree will present study in a rapidly changing and highly complex discipline of safety in the construction workplace. Research shows a significant shortage

of Construction Safety professionals needed in this emerging discipline. The proposed degree will provide graduates to help fill the need. There is a thorough discussion of the need in Sections B and C of this document.

E. Relevance to high-demand programs at Historically Black Institutions (HBIs):

- 1. Discuss the program's potential impact on the implementation or maintenance of high-demand programs at HBIs.**

The University is not aware of any similar high-demand programs at the Maryland HBIs. Please see Section D.1 for a discussion of the distinctive nature of the proposed program.

F. Relevance to the identity of Historically Black Institutions (HBIs):

- 1. Discuss the program's potential impact on the uniqueness and institutional identities and missions of HBIs.**

The University is not aware of any impact on the uniqueness and institutional identities and missions of Maryland HBIs. Please see Section D.1 for a discussion of the distinctive nature of the proposed program.

G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes (as outlined in COMAR 13B.02.03.10):

- 1. Describe how the proposed program was established, and also describe the faculty who will oversee the program.**

The University's New Programs Group established the proposed program through a rigorous review of unmet needs. The group includes selected representation from the University's faculty, administrators, and Executive Council. The program will be overseen by a diverse group of faculty members with backgrounds in occupational health and safety, unmanned and autonomous systems, engineering, cybersecurity, construction science and management, mechanical engineering, environmental engineering, architectural engineering, strategic studies, computer science, building construction technology, and business. Please see Section I for a detailed list of the faculty's backgrounds.

- 2. Describe educational objectives and learning outcomes appropriate to the rigor, breadth, and (modality) of the program.**

Educational Objectives:

- Prepare students to conduct themselves in full compliance with the standards and requirements of the Board of Certified Safety Professionals (BCSP).
- Prepare students to create and implement occupational health and safety programs within the construction industry.
- Prepare students to identify the full breadth of safety risks and hazards in a construction environment and establish a hierarchy of controls.
- Prepare students to identify the full breadth of health risks and hazards in a construction environment and establish a hierarchy of controls.

- e. Prepare students to apply knowledge in occupational health and safety to adapt to emerging occupational health and safety trends in construction.
- f. Prepare students to lead emergency preparedness and manage emergencies in a construction environment.
- g. Prepare students to communicate effectively in a Construction Safety using a full range of techniques.

Learning Outcomes:

Upon graduation:

- a. Graduates will evaluate the legal and ethical principles applicable to Construction Safety and demonstrate the ability to apply these principles in the leadership decision-making process.
- b. Graduates will integrate theory and the practice of Construction Safety in the process of complex problem solving within the occupational health and safety field.
- c. Graduates will demonstrate a mastery of traditional and technological techniques of communicating ideas effectively and persuasively in the occupational health and safety environment in construction.
- d. Graduates will demonstrate and apply in-depth knowledge as it relates to the Construction Safety.
- e. Graduates will contribute effectively to the achievement of organizational Construction safety goals in a team environment.
- f. Graduates will demonstrate the highly developed communication and collaboration skills required of effective Construction Safety professionals.

3. Explain how the institution will:

a) Provide for assessment of student achievement of learning outcomes in the program

Capitol Technology University will assess student achievement of the learning outcomes per the regulations specified by the university's regional accreditation organization, the Middle States Commission on Higher Education (MSCHE), and the Board of Certified Safety Professionals (BCSP).

Under MSCHE, the university will use Standard V, Educational Effectiveness Assessment, of the Standards for Accreditation and Requirements of Affiliation. Standard V requires:

Assessment of student learning and achievement demonstrates that the institution's students have accomplished educational goals with their program of study, degree level, the institution's mission, and appropriate expectations for institutions of higher education.

(Source: <https://www.msche.org/?Nav1=About&Nav2=FAQ&Nav3=Question07>)

Per the MSCHE's accreditation requirements, Capitol Technology University will measure Standard V by using the following criteria:

An accredited institution possesses and demonstrates the following attributes or activities:

1. clearly stated educational goals at the institution and degree/program levels, which are interrelated with one another, with relevant educational experiences, and with the institution's mission;
2. organized and systematic assessments, conducted by faculty and/or appropriate professionals, evaluating the extent of student achievement of institutional and degree/program goals. Institutions should:
 - a. define meaningful curricular goals with defensible standards for evaluating whether students are achieving those goals;
 - b. articulate how they prepare students in a manner consistent with their mission for successful careers, meaningful lives, and, where appropriate, further education. They should collect and provide data on the extent to which they are meeting these goals;
 - c. support and sustain assessment of student achievement and communicate the results of this assessment to stakeholders;
3. consideration and use of assessment results for the improvement of educational effectiveness. Consistent with the institution's mission, such uses include some combination of the following:
 - a. assisting students in improving their learning;
 - b. improving pedagogy and curriculum;
 - c. reviewing and revising academic programs and support services;
 - d. planning, conducting, and supporting a range of professional development activities;
 - e. planning and budgeting for the provision of academic programs and services;
 - f. informing appropriate constituents about the institution and its programs;
 - g. improving key indicators of student success, such as retention, graduation, transfer, and placement rates;
 - h. implementing other processes and procedures designed to improve educational programs and services;
4. if applicable, adequate and appropriate institutional review and approval of assessment services designed, delivered, or assessed by third-party providers; and
5. periodic assessment of the effectiveness of assessment processes utilized by the institution for the improvement of educational effectiveness.

(Source: <https://www.msche.org/publications/RevisedStandardsFINAL.pdf>)

Under Board of Certified Safety Professionals (BCSP), the University will also use BCSP's Safety Trained Supervisor Construction STSC6 Blueprint to assess student achievement of the learning outcomes in the program:

Domain 1 <i>Safety Program Implementation • 21.9%</i>
Knowledge of: <ol style="list-style-type: none"> 1. Established environmental, safety, and health programs for implementation in the field (e.g., program compliance) 2. Appropriate respiratory protection relevant to the job task and associated hazards 3. Incident investigative processes and documentation (e.g., secure site, gather facts, take photographs) 4. How to conduct a job/task hazard analysis 5. Hazards that need to be escalated and who to contact for determination of appropriate controls 6. Sanitation requirements (e.g., hand-washing facilities, toilets, single-use cups, potable drinking water, trash receptacles) 7. Illumination requirements for job tasks 8. Hot work hazards and associated control methods (e.g., fire watch, permit)
Skill to: <ol style="list-style-type: none"> 1. Evaluate if workers have required qualifications, training, or certifications for job tasks (e.g., power industrial trucks, aerial work platforms, confined space, lockout/tagout, respiratory protection) 2. Identify and evaluate if a worker is fit for duty (e.g., sick, under influence of controlled substances, fatigued) 3. Identify safe and at-risk workplace behaviors 4. Conduct a safety inspection or audit 5. Correct hazards or risks found in a safety inspection or audit 6. Implement corrective actions based on the outcome of an incident investigation 7. Implement appropriate controls for job site hazards
Domain 2 <i>Hazard Identification and Control • 40.2%</i>
Knowledge of: <ol style="list-style-type: none"> 1. Electrical hazards and controls 2. Excavation hazards and controls 3. Confined space requirements, hazards, and controls 4. Hazardous energy and control methods (e.g., lockout/tagout, blocking and bleeding of lines) 5. Work zone hazards and controls (e.g., traffic control, limited access zones) 6. Hazards and controls associated with material handling (e.g., site layout for materials, proper stacking and storage, lateral and horizontal movements) 7. Struck by/caught between hazards and controls 8. Rotating moving equipment pinch points hazards and controls 9. How to respond to environmental impacts (e.g., spills, pollutants) 10. Appropriate use, care, maintenance, and limitations of personal protective equipment (PPE) 11. Hazards associated with working at heights (e.g., scaffolding, lifts, ladders, stair towers, leading edge) 12. Fall protection systems, components, and installations 13. Hazards associated with walking/working surfaces 14. Hazards associated with poor housekeeping (e.g., rolling stock, slip hazards, blocked exits, fire exposures, material waste) 15. Hazards associated with hand and power tools (e.g., guarding; powder actuated; use, care, and maintenance of tools) 16. Hazards associated with heavy equipment (e.g., crawlers, bucket loader, back hoe) 17. Hazards associated with cranes (e.g., swing radius, ground conditions, overhead power lines) 18. Hoisting, rigging, and signaling 19. Hierarchy of controls
Skill to: <ol style="list-style-type: none"> 1. Identify if there are risks or hazards associated with the site layout 2. Identify if personal protective equipment (PPE) is adequate for the job task and hazards

<p>Domain 3 <i>Health Hazards and Basic Industrial Hygiene • 12.6%</i></p>
<p>Knowledge of:</p> <ol style="list-style-type: none"> Hazards and controls related to musculoskeletal disorders (e.g., proper lifting techniques, buddy system, elevating material to proper work height) Work conditions that could create thermal stress (e.g., humidity, temperature, PPE, duration of exposure, wind) and control methods (e.g., drinking water, warm up area) Chemical hazards and controls (e.g., Globally Harmonized System)
<p>Skill to:</p> <ol style="list-style-type: none"> Recognize ergonomic hazards on the worksite (e.g., vibration, repetitive motion) Recognize symptoms associated with thermal stress (e.g., heat stroke, hypothermia) Identify hazards associated with inhalation, absorption, ingestion, and injection on a job task (e.g., silica, asbestos, chemicals, lead, welding fumes, sharps) Identify potential exposure to noisy environments Identify if controls are being implemented correctly (e.g., if hearing protection is being worn correctly)
<p>Domain 4 <i>Emergency Preparedness and Management • 11.5%</i></p>
<p>Knowledge of:</p> <ol style="list-style-type: none"> Use, access, and inspections of fire prevention and protection methods (e.g., PASS-pull the pin, aim at base of fire, squeeze handle, and sweep side to side) Potential fire hazards (e.g., sources of ignition) Emergency response plans and drills (e.g., natural disasters, weather, crisis, fire, alarms, evacuation, rescue procedures) Required emergency response equipment for worksite hazards (e.g., eye wash facilities, backboard, rescue skiff, first aid kit) How to respond to medical emergencies (e.g., bloodborne pathogens, first aid, emergency contacts)
<p>Skill to:</p> <ol style="list-style-type: none"> Identify if correct fire extinguishing methods are in place for worksite hazards
<p>Domain 5 <i>Leadership, Communication, and Training • 13.8%</i></p>
<p>Knowledge of:</p> <ol style="list-style-type: none"> Coaching techniques How to influence others to achieve desired outcome Effective communication techniques (e.g., repeat back) Negative and positive reinforcement and motivation techniques (e.g., progressive discipline, recognition for correct behaviors) How language and cultural barriers impact the safety of employees How to limit exposure to hazards from multiple trades working in proximity (e.g., scheduling, communication of safety-related matters) What should be documented (e.g., training attendance, inspections, daily safety briefings) All written documentation being discoverable in a legal case Confidentiality considerations (e.g., trade secrets, personal medical information) BCSP Code of Ethics
<p>Skill to:</p> <ol style="list-style-type: none"> Recognize when to seek appropriate subject matter expertise for additional guidance

4. Provide a list of courses with title, semester credit hours and course descriptions, along with a description of program requirements.

Program description, as it will appear in the catalog:

The **Master of Science (M.S.) degree in Construction Safety** emphasizes the technical, managerial and leadership skills required to implement proactive safety and risk reduction initiatives associated with construction activities performed in a variety of environments (i.e., large construction sites, capital projects, facilities, government and military installations). This degree program focuses on the skills required to plan, direct and implement construction safety programs, and to ensure the development of safe and healthy construction work teams that proactively respond to and mitigate hazards, champion regulatory compliance, foster safety culture and communication, and implement sound risk management techniques.

The **M.S. in Construction Safety** provides an opportunity for those currently in the construction field and construction related industries to gain skills in safety that lead to management positions in construction safety as well as the required safety knowledge needed when applying for the credentialing through the Board of Certified Safety Professionals (BCSP). The Board of Certified Safety Professionals indicates that it is the “Gold Standard” of safety certifications around the world, protecting and developing workers, informing the development of international safety, health and environmental standards, and contributing to the international advancement of the safety profession. The Board of Certified Safety Professionals also offers organizations a Safety Trained Supervisor Construction (STSC) sponsorship program. The STSC provides a competitive edge and helps to promote safety awareness and training.

Description of program requirements:

Entrance requirements: To be fully accepted into the program, students must have completed an undergraduate degree with a cumulative GPA of no less than 3.0 on a 4.0 scale.

Degree Requirements:

The following is a list of courses for the **M.S. in Construction Safety** degree. Students expecting to complete this degree must meet all prerequisites for the courses listed below.

Master of Science in Construction Safety Courses

CONSTRUCTION SAFETY AND RESEARCH COURSES - 36 CREDITS

SAF-600 Construction Safety Math and Metrics (3 Credits)

This course presents a comprehensive study and review of chemistry, industrial hygiene and other safety-related calculations, statistics and safety performance measurement strategies used in professional safety practice with a special emphasis on use and application in the construction industry. Discussion of the development of an effective safety program using the collection and evaluation of qualitative and quantitative data including the math, metrics and statistics required to make informed decisions will be emphasized. Performance metrics and indicators will be

explored to identify ways that corrective actions can be taken before an accident or injury occurs. Prerequisite: None. (3)

SAF-610 Advanced Industrial Hygiene (3 Credits)

This course provides an in depth study of the field of industrial hygiene and occupational health including biological, chemical and physical hazards and controls in the context of the accomplishment of hazardous tasks within a changing work environment. The concepts, terminology, and methodology used in the practice of industrial hygiene and the identification and application of current resource materials will be studied. The concepts to workplace exposure assessment and the selection and application of the correct industrial hygiene calculations required to evaluate and select appropriate hazard controls is part of this course. Prerequisite: SAF-600. (3)

SAF-620 Advanced Hazardous Materials (3 Credits)

This course covers the science and strategies related to the proper storage and disposal of hazardous materials and wastes to prevent worker exposure and discharge of pollutants to the environment. A review of the chemistry and industrial hygiene calculations related to chemical reactions, corrosives, flammables, toxic materials and related fire and explosion hazards is included. Assessment and control strategies related to hazardous materials and wastes including exposure limits, routes of entry, incompatibilities and reactivity, and acute and chronic exposures are covered. This course is intended to facilitate the knowledge, skills and abilities to effectively make and verbalize justifiable risk-based decisions related to hazardous waste and materials. Prerequisite: SAF-600. (3)

SAF-630 Advanced Environmental Management (3 Credits)

This course studies environmental management regulations including the Clean Air Act, Clean Water Act, Spill Prevention, Control, and Countermeasure Rule, Resource Conservation and Recovery Act, Emergency Planning and Community Right-to-Know Act, Toxic Substances Control Act, and the Comprehensive Environmental Response, Compensation, and Liability Act. Environmental management related to soil, groundwater and storm water evaluation and permitting with emphasis on hazardous materials (lead, asbestos, polychlorinated biphenyls, mold), air emissions, demolition debris, underground storage tanks and underground injection control will be covered. Prerequisite: SAF-600. (3)

SAF-640 Construction Ergonomics (3 Credits)

This course studies ergonomic assessment and evaluation tools related to the performance of on-site task assessment for construction activities and construction site safety programs. Human factors, measurement and monitoring, risk factor identification, and controls for common construction ergonomics issues such as back injuries, upper extremity cumulative trauma disorders (CTDs), musculoskeletal disorders (MSDs), repetitive motion injuries and whole body vibration (WBV) will be examined. The knowledge and skills to perform ergonomic job task analyses, devise injury prevention strategies, and develop and implement innovative solutions will be included. Prerequisite: SAF-600. (3)

SAF-650 Specific Construction Hazards (3 Credits)

This course examines safety programs, training and competencies for specific construction hazards, such as excavation and trenching, heavy equipment operation, fall protection, fire prevention and protection, emergency management, fleet safety, hazardous energy control, cranes and rigging, mechanical and structural strength of materials, welding/hot work and industrial

hygiene monitoring of work tasks with a high risk of exposure. Responding to unanticipated hazards due to changes in project timelines, sequence of events, and the fast pace of some construction projects will be discussed. Risk management and hazard control processes related to fall, struck by, caught in/between, and electrical injuries are integrated into the discussion. Prerequisite: None. (3)

SAF-660 Construction Safety Program Development (3 Credits)

This course examines the best practices, principles and approaches to preparing, implementing and maintaining specific safety and health programs for the construction work environment. Components of a comprehensive construction safety and health program will be reviewed. The course will include safety requirements related to hazard communication, PPE selection and use, tools, ladders, scaffolds, forklifts, respiratory protection, lone/remote workers, system and process safety management, confined space entry, fall protection, fire protection/prevention, hazardous energy control, emergency management plans and life safety, drug and alcohol policies, workplace violence, and fit for duty/medical monitoring. Prerequisite: SAF-650. (3)

SAF-670 Advanced Safety Management Systems (3 Credits)

This course focuses on the management of construction health and safety through the life cycle of construction process through all its phases from project inception through design build review processes during construction to demolition or deconstruction/modification of existing facilities. Examination of how a well-defined safety management system can facilitate: selecting the appropriate risk management and hazard control processes; informing emergency management and business continuity decisions; assisting project management in achieving schedule, performance and risk goals; and strengthening task-specific safety program components. A review of available safety management system guidelines will be performed (i.e., ISO 45001, ANSI Z10). Prerequisite: SAF-660. (3)

SAF-680 Construction Risk Management Methods (3 Credits)

This course studies how construction safety professionals can design, implement and maintain safety programs and policies aimed at lowering risk and help reduce job site injuries and increase workforce productivity. Risk management methods that help evaluate tasks and job site conditions with the goal of anticipating and solving problems before they result in an adverse impact to workers are examined. This course covers subcontractor vetting options, bid and contract administration for safety expectations and risk transfer, contractor compliance audit strategies, risk management tools and tracking methods, and training and education in risk management (responsibility and accountability, job safety analysis, near miss reporting and analysis, lessons learned human performance initiatives, and task mindfulness). Prerequisite: SAF-670. (3)

SAF-700 Safety in Facilities and Capital Construction (3 Credits)

The course examines the selection and optimization of systems and controls for human physiological benefits in the built environment, such as thermal comfort, ventilation, air quality, lighting, and acoustic conditions. Prevention through Design, management of change, life safety considerations, fire protection and prevention systems, and design review for safety methods to ensure safety in the built environment are examined. Safety during capital construction projects, including contractor vetting, multi-employer worksite principles, safety training, management of special programs (confined space, fall protection, hazardous energy control, physical security), protection of existing facility employee populations, business continuity and emergency planning, incident investigation, and site inspections/audits is included. Prerequisite: None. (3)

SAF-710 Training Performance and Evaluation (3 Credits)

This course covers the best practices for development, delivery, and evaluation of safety training related to employee onboarding, work site induction, mandatory safety programs, task-specific competencies, and required safety program components for workers including the consideration for training of temporary workers and day laborers. Tools available for the preparation, delivery and evaluation of accurate, credible, clear and practical safety training are covered. Proven adult learning theory and techniques, assessment of worker competency, behavior and performance modification, data collection, needs analysis and feedback methods are discussed. Methods for successful interpersonal communication, mentoring, and facilitating successfully informed and trained work teams are examined. Prerequisite: None. (3)

SAF-720 Construction Safety Leadership (3 Credits)

This course discusses current issues in construction safety management including but not limited to professional ethics, management of change, influencing company and project management teams, and building project and company safety culture. Understanding essential leadership skills and techniques required to successfully lead construction safety initiatives, such as strategic and financial management, risk management, construction ethics, safety management, leadership, and championing safety within construction productivity and cost constraints are examined. This course relies on construction site and project case studies to discuss these topics. This course is the capstone course for the M.S. in Construction Safety degree program. Prerequisite: SAF-610, SAF-620, SAF-630, SAF-640, SAF-680, SAF-700, and SAF-710. (3)

5. Discuss how general education requirements will be met, if applicable.

N/A. This is a graduate program.

6. Identify any specialized accreditation or graduate certification requirements for this program and its students.

The program will be accredited by the University's regional accrediting organization: the Middle States Commission on Higher Education (MSCHE). The program will also receive specialized accreditation as a Qualified Academic Program (QAP) by the Board of Certified Safety Professionals (BCSP). Capitol Technology University is accredited by MSCHE and the proposed degree program will achieve accreditation by the BCSP.

7. If contracting with another institution or non-collegiate organization, provide a copy of the written contract.

The University will not be contracting with another institution or non-collegiate organization for this degree.

8. Provide assurance and any appropriate evidence that the proposed program will provide students with clear, complete, and timely information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technology competence and skills, technical equipment requirements, learning management system, availability of academic support services and financial aid resources, and costs and payment policies.

The M.S. in Construction Safety program will provide students with clear, complete, and timely

information on the curriculum, course and degree requirements, nature of faculty/student interaction, assumptions about technology competence and skills, technical equipment requirements, Learning Management System, availability of academic support services and financial aid resources, and costs and payment policies.

Curriculum, course and degree information will be available on the University website and via e-mail as well as regular mail (by request). The expectations on faculty/student interaction are available to students during virtual open house events, literature, website, etc. In addition, this information is part of the material distributed for each course. Students also receive guidance from the Director of Master's Programs on proper behavior/interaction in the online environment to facilitate a high-level learning experience. Technology competence, skills, and technical equipment requirements are part of the material distributed for each course. The technical equipment requirements are listed on the University website. The requirements are also provided to students in the University's Welcome Package.

The University's academic support services, financial aid resources, costs and payment policies, and learning management system are covered in the university open houses, application process, Welcome Aboard process, graduate orientation, student online town halls, and individual counseling.

- 9. Provide assurance and any appropriate evidence that advertising, recruiting, and admissions materials will clearly and accurately represent the proposed program and the services available.**

The **M.S. in Construction Safety** program's advertising, recruiting, and admissions materials will clearly and accurately represent the proposed program and the services available. The material for every new program is derived from the new program request sent to the Maryland Higher Education Commission.

H. Adequacy of Articulation:

- 1. If applicable, discuss how the program supports articulation with programs at partner institutions. Provide all relevant articulation agreements.**

This program does not currently have articulation partners. However, the articulation process will work as it does for the University's current degrees. The University is very active with its transfer partners throughout the state and beyond. The goal of the University is to work with partners to make transfer as seamless as possible and to maximize the student's transfer credits as allowable. There are transfer admissions personnel to guide the student through the process.

I. Adequacy of Faculty Resources (as outlined in COMAR 13B.02.03.11):

- 1. Provide a brief narrative demonstrating the quality of the program faculty. Include a summary list of the 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.**

All faculty listed below have been engaged with the University for at least several years. Prof. Burke and Dr. Sims are fulltime faculty members. Eight of the ten faculty members, who will be

involved in the program, hold terminal degrees. Prof. Burke and Prof. R. Ford are professionally qualified given their significant years of experience and positions held in occupational health and safety. Their resumes and curriculum vitae have reviewed and each one is deemed professionally qualified to teach their courses at this level. The University leadership is confident in the quality of the faculty and their abilities to provide a learning environment supportive of the University goals for student success. Additional doctorally-qualified faculty will be added as needed.

Instructors who will be engaged with the **M.S. in Construction Safety** degree:

INSTRUCTOR	BACKGROUND	COURSES ALIGNED TO BE TAUGHT
Dr. Hasna Banu Adjunct	Ph.D. Theoretical Physics M.S. Mathematics M.S. Mathematics	SAF-600
Prof. Gary Burke Full time	Authorized OSHA Outreach Trainer: Construction Licensed General Contractor (North Carolina) M.B.A. B.S. Building Science Professionally Qualified	All SAF courses
Dr. Craig Capano Adjunct	Ph.D. Civil Engineering with Concentration in Construction Engineering and Management and a focus on Business M.C.S.M. (Master of Construction Science and Management) B.S. Construction Management A.S. Architectural Engineering	SAF-670, SAF-680, SAF-720
Dr. George Ford Adjunct	Professional Engineer (P.E.) Ed.D. Educational Leadership M.E. Environmental Engineering M.B.A. B.S. Mechanical Engineering	SAF-670, SAF-680, SAF-720
Mr. Robert Ford Adjunct	M.S. Training and Development B.S. Construction Science Professionally Qualified	All SAF courses
Dr. Raymond Godfrey Adjunct	NIOSH Fellowship for Graduate Studies - Occupational Injury Prevention Research & Training Ph.D. Design, Construction & Planning - Construction Safety Management M.S. Building Construction Management B.S. Psychology	All SAF courses
Dr. Linda Martin Adjunct	Ph.D. Safety Sciences M.S. Occupational Safety and Health Management M.B.A General Management B.S. Geology	All SAF courses

	Certified Industrial Hygienist: CP-10409 Certified Safety Professional: CSP-21861 Associate Safety Professional: ASP-A15411 Safety Management Specialist: SMS-2 Occupational Health and Safety Technologist: OHST-4264 Construction Health and Safety Technician: CHST-C3978 Safety Trained Supervisor – Construction: IEX11851 Certified Environmental Safety & Health Trainer: CET-13003 Certified Hazardous Materials Manager: CHMM- 17198 Construction Risk and Insurance Specialist (CRIS) Authorized OSHA Outreach Trainer: General Industry Authorized OSHA Outreach Trainer: Construction	
Dr. Ronald Mau Adjunct	Ph.D. Business M.B.A. M.S. Civil Engineering B.S. Civil Engineering	SAF-670, SAF-680, SAF-720
Dr. Bradford Sims Full time	Ph.D. Curriculum Instruction Design M.S. Building Construction Management B.S. Building Construction Technology	SAF-670, SAF-680, SAF-720
Dr. Blake Wentz Adjunct	Ph.D. Technology Management with Construction Management Focus M.E. Construction Management B.S. Business Administration with Finance Major Certified Professional Constructor (CPC) Leadership in Energy and Environmental Design (LEED) Advanced Professional (AP)	SAF-670, SAF-680, SAF-720

Additional doctorally-qualified faculty will be added in the near future to the degree program.

ADDITIONAL JUSTIFICATION:

Capitol Technology University’s Occupational Health and Safety Instructors are leading experts in the construction safety fields:

1. Ms. Linda Martin is currently serving as the President of the Board of Directors for the Board of Certified Safety Professionals. She maintains a full time position with Bay Crane, Inc. as their Corporate Safety Director and has built and taught many safety courses as an adjunct faculty for both the general occupational health and safety areas and in construction safety. She has nearly thirty years of industry experience in safety fields. Her list of safety certifications include: Certified Industrial Hygienist: CP-10409, Certified Safety Professional: CSP-21861, Associate Safety Professional: ASP-A15411, Safety Management Specialist: SM.S.-2, Occupational Health and Safety Technologist: OHST-4264, Construction Health and Safety Technician: CHST-

C3978, Safety Trained Supervisor – Construction: IEX11851, Certified Environmental Safety & Health Trainer: CET-13003, Certified Hazardous Materials Manager: CHMM-17198, Construction Risk and Insurance Specialist (CRIS), Authorized OSHA Outreach Trainer: General Industry, and Authorized OSHA Outreach Trainer: Construction.

2. Prof. Gary Burke has forty years of experience either working in the construction industry or teaching construction and construction safety courses. He is a certified OSHA authorized construction trainer and managed his own residential construction company as a licensed general contractor for fourteen years where jobsite safety was part of his daily responsibility. He is a full-time Associate Professor with Capitol Technology University with program oversight.
3. Dr. Raymond Godfrey has a strong background in construction. He has also completed the prestigious NIOSH Fellowship for Graduate Studies - Occupational Injury Prevention Research and Training. Dr. Godfrey has held faculty positions in both construction programs and occupational health and safety programs. He is an expert on construction jobsite safety.
4. Prof. Robert Ford has a strong background in construction and safety. He currently works for Carolina Specialties Construction as the Safety Coordinator. Prof. Ford maintains both his OSHA training certifications for construction and general industry. He has held positions in the construction industry and construction education for over 30 years.

2. Demonstrate how the institution will provide ongoing pedagogy training for faculty in evidenced-based best practices, including training in:

a) Pedagogy that meets the needs of the students

The primary pedagogy for faculty at Capitol Technology University is the Active Learning model. The university believes strongly in a highly-interactive, thinking, and hands-on experience for students in each class to the maximum extent possible.

It was two Missouri State professors, historian Charles Bonwell and psychologist James Eison, who coined the term “active learning.” In their 1991 book on the subject, *Active Learning: Creating Excitement in the Classroom*, they offered this definition of the concept: “active learning involves students in doing things and thinking about the things they are doing.”

The definition, though it seems circuitous, marks a definitive pedagogical shift in college teaching and learning. Rather than think about what they are watching, hearing, or reading, students are first encouraged to be “doing” something in class, and then to apply critical thought and reflection to their own classroom work and activity. Their argument was backed up by research. Even Bligh, 20 years earlier, had pointed out that the immediate rehearsal of new information and knowledge had a significant impact upon learning.

This approach is as helpful in the sciences as it is in the arts or humanities: whether it’s organic chemistry, creative writing, or behavioral economics, concepts are all best understood through repeated practice and open, social exploration. The central tenet of active learning is that practice matters, and that classroom time is better

spent giving students opportunities to work with concepts over and over, in a variety of ways and with opportunities.

The central tenet of active learning — that practice and interaction matters— can be applied across disciplines for immediate feedback, so that knowledge can take hold in their own minds.

(Source: Preville, P. Active Learning: The Perfect Pedagogy for the Digital Classroom: An Essential Guide for the Modern Professor)

All faculty receive regular periodic and recurring pedagogical training during the academic year. Those training sessions occur in a hybrid format – simultaneously live online and live on-ground in the classroom. The sessions are designed to reach all faculty, both fulltime and adjunct, in order to ensure all members receive the training. Additionally, the sessions are recorded for those faculty who are unable to attend the live training session due to other professional commitments and who are teaching classes.

b) The Learning Management System

The Department of Online Learning (formerly the University’s Department of Distance Learning) and the instructional technology division support the online program needs of faculty and students. Those university organizations and the IT Help Desk provide constant and on-going support to the faculty. The Canvas portion of the program is the online Learning Management System. When a new faculty member is assigned to teach an online course, the Department of Distance Learning provides formal training for that instructor. New faculty are assigned an experienced faculty mentor to ensure a smooth transition to the online environment as well as to ensure compliance with the institution’s online teaching pedagogy. The University believes this provides the highest-level learning experience for the faculty member and, in turn, students attending online classes.

c) Evidenced-based best practices for distance education, if distance education is offered.

Faculty at Capitol Technology University receive training in Keller’s ARCS Motivational Model and his associated strategies for distance education/online learning.

A model used in online delivery of teaching and learning to increase learner motivation is the Keller’s ARCS motivational model. This model has been considered an important element in online education because of its implications on increased learner motivation and learning outcomes. The Keller’s model consists of motivating students by maintaining and eliciting attention (A), such as virtual clinical simulations; making the content and format relevant (R), by modeling enthusiasm or relating content to future use; facilitating student confidence (C), by providing “just the right challenge”; and promoting learner satisfaction (S), by providing reinforcement and praise when appropriate. Examples of the Keller’s model include increasing motivation including the arousal of curiosity of students, making the connection between learning objectives and future learning goals, autonomous thinking and learning, and fostering student satisfaction. Keller’s ARCS model has been researched by various educational online programs to analyze student motivation and learning outcomes. The Keller’s model serves as an

example and guide for instructors to motivate and increase online engagement with their students as well as research purposes.

A qualitative study by Chan Lin investigated online student learning and motivation. Discussion boards, student projects, and reflection data were collected and analyzed from a 12-week web-based course. Respondents indicated the importance of online feedback from the instructor and peer modeling of course tasks to visualize learning progress. The study revealed using Keller's ARCS strategies fosters greater student online engagement by fostering self-efficacy and a sense of accomplishment.

In a mixed method study, assessing the use of Keller's ARCS on instructional design, the use of educational scaffolding fostered positive levels of student motivation. Relevancy, attention, confidence, and satisfaction were all common factors associated with student success in the course and course completion.

(Source: Pinchevsky-Font T, Dunbar S. Best Practices for Online Teaching and Learning in Health Care Related Programs. The Internet Journal of Allied Health Sciences and Practice. January 2015. Volume 13 Number 1.)

All faculty receive regular periodic and recurring training on evidence-based practices for distance education/online learning during the academic year. Those training sessions occur in a hybrid format – simultaneously live online and live on-ground in the classroom. The sessions are designed to reach all faculty, both fulltime and adjunct, to ensure all members receive the training. Additionally, the sessions are recorded for those faculty who are unable to attend the live training session due to other professional commitments or who are teaching classes at the training delivery time.

J. Adequacy of Library Resources (as outlined in COMAR 13B.02.03.12):

- 1. Describe the library resources available and/or the measures to be taken to ensure resources are adequate to support the proposed program. If the program is to be implemented within existing institutional resources, include a supportive statement by the President for library resources to meet the program's needs.**

Library Services: The Puente Library offers extensive services and a wide collection for Capitol Technology University students to be academically successful. Library resources are available digitally. The library also provides a mailing service for materials borrowed through the Maryland system. The library is currently supporting the following degrees at the undergraduate level: B.S. in Astronautical Engineering, B.S. in Business Analytics and Data Sciences, B.S. in Computer Engineering, B.S. in Computer Engineering Technology, B.S. in Computer Science, B.S. in Construction Management and Critical Infrastructure, B.S. in Cyber Analytics, B.S. in Cybersecurity, B.S. in Electrical Engineering, B.S. in Electrical Engineering Technology, B.S. in Engineering Technology, B.S. in Management of Cyber and Information Technology, B.S. in Mechatronics Engineering, B.S. in Mechatronics and Robotics Engineering Technology, B.S. in Mobile Computing, B.S. in Software Engineering, and B.S. in Technology and Business Management, and B.S. in Unmanned and Autonomous Systems. The library is currently supporting the following degrees at the graduate level: M.S. in Aviation, M.S. in Aviation Cybersecurity, M.S. in Computer Science, M.S. in Critical Infrastructure, M.S. in Cyber Analytics, M.S. in Cybersecurity, M.S. in Engineering Technology, M.S. in Information Systems

Management, M.S. in Internet Engineering, M.S. in Unmanned and Autonomous Systems Policy and Risk Management, M.B.A., T.M.B.A. Business Analytics and Data Science, T.M.B.A. in Cybersecurity, D.Sc. in Cybersecurity, Ph.D. in Aviation, Ph.D. in Business Analytics and Decision Sciences, Ph.D. in Critical Infrastructure, Ph.D. in Manufacturing, Ph.D. in Product Management, Ph.D. in Technology, Ph.D. in Technology/M.S. in Research Methods Combination Program, and Ph.D. in Unmanned Systems Applications. Therefore, the library is fully prepared to support a **M.S. in Construction Safety**.

Services provided to online students include:

- “Ask the Librarian”
- Research Guides
- Tutorials
- Videos
- Online borrowing

The John G. and Beverley A. Puente Library provides access to management, decision science, and research methods materials through its 10,000-title book collection, e-books, and its 90 journal subscriptions. The library will continue to purchase new and additional materials in the management, decision science, and research methods area to maintain a strong and current collection in this subject area. Students can also access materials through the library’s participation in Maryland’s Digital eLibrary Consortium. This online electronic service provides access to numerous databases (Access Science, NetLibrary) that supply students with the materials they need. Available databases include ProQuest, EBSCO, ACM, Lexis Nexis, Taylor Francis, and Sage Publications.

The Puente Library can provide access to historical management and decision science materials through its membership in the Maryland Independent College and University Association (MICUA) and the American Society of Engineering Education (ASEE). Reciprocal loan agreements with fellow members of these organizations provide the library access to numerous research facilities that house and maintain archives of management and decision science documents. The proximity of the University of Maryland, College Park and other local area research and academic libraries provide the Puente Library with quick access to these materials as well.

The library currently supports the needs students at the undergraduate, masters and doctoral levels

K. Adequacy of Physical Facilities, Infrastructure and Instructional Equipment (as outlined in COMAR 13B.02.03.13):

- 1. Provide an assurance that the physical facilities, infrastructure and instruction equipment are adequate to initiate the program, particularly as related to spaces for classrooms, staff and faculty offices, and laboratories for studies in the technologies and sciences. If the program is to be implemented within existing institutional resources, include a supportive statement by the President regarding adequate equipment and facilities to meet the program’s needs.**

No new facilities are required for the program. The online class platform is web based and requires no additional equipment for the institution. The current Learning Management

System, Canvas and Zoom, meets the needs of the degree program. The Business and Technology lab, Computer Science Lab, Cyber Lab, Robotics Lab, and Unmanned Systems Lab together meet the potential research needs of the students. The labs provide both local and virtual support.

- 2. Provide assurance and any appropriate evidence that the institution will ensure students enrolled in and faculty teaching in distance education will have adequate access to:**

- a) An institutional electronic mailing system**

Capitol Technology University provides an institutional electronic mailing system to all students and faculty. The capability is provided to all students and faculty in all the institution's modalities of course delivery. Capitol Technology University students and faculty are required to use the institution's email addresses (e.g., xxxxxxxx@captechu.edu) in all university matters and communications. The University uses the email capabilities in Microsoft Office 365 and Microsoft Outlook.

- b) A learning management system that provides the necessary technological support for distance education**

Capitol Technology University provides a robust Learning Management Systems (LMS) through the use of the Canvas LMS by Instructure (www.canvaslms.com). The University pairs Canvas with Zoom (zoom.us) to provide a platform for every student and faculty member to meet face-to-face in a synchronous "live" mode of communication. The use of Canvas is required for every course offered at the University; as a result, every course has a classroom on Canvas and Zoom. All syllabi, grades, and assignments must be entered in to Canvas on a timely basis throughout the semester.

Canvas provides the world's most robust LMS. It is a 21st Century LMS; Canvas is a native cloud, Amazon Web Service hosted system. The system is adaptable, reliable, and customizable. Canvas is easy to use for students and faculty. The system is fully mobile and has proven to be time-saving when compared to other systems. The following list provides the features of the system:

Time and Effort Savings

- **CANVAS DATA**
Canvas Data parses and aggregates more than 280 million rows of Canvas usage data generated daily.
- **CANVAS COMMONS**
Canvas Commons makes sharing a whole lot easier.
- **SPEEDGRADER ANNOTATIONS**
Preview student submissions and provide feedback all in one frame.
- **GRAPHIC ANALYTICS REPORTING ENGINE**
Canvas Analytics help you turn rich learner data into meaningful insights to improve teaching and learning.

- **INTEGRATED MEDIA RECORDER**
Record audio and video messages within Canvas.
- **OUTCOMES**
Connect each learning outcome to a specific goal, so results are demonstrated in clearly measurable ways.
- **MOBILE ANNOTATION**
Open, annotate, and submit assignments directly within the Canvas mobile app.
- **AUTOMATED TASKS**
Course management is fast and easy with automated tasks.
- **NOTIFICATION PREFERENCES**
Receive course updates when and where you want - by email, text message, even Twitter or LinkedIn.
- **EASE OF USE**
A familiar, intuitive interface means most users already have the skills they need to navigate, learn, and use Canvas.
- **IOS AND ANDROID**
Engage students in learning anytime, anywhere from any computer or mobile device with a Web-standard browser.
- **USER-CUSTOMIZABLE NAVIGATION**
Canvas intelligently adds course navigation links as teachers create courses.
- **RSS SUPPORT**
Pull feeds from external sites into courses and push out secure feeds for all course activities.
- **DOWNLOAD AND UPLOAD FILES**
Work in Canvas or work offline—it's up to you.
- **SPEEDGRADER**
Grade assignments in half the time.

Student Engagement

- **ROBUST COURSE NOTIFICATIONS**
Receive course updates when and where you want—by email, text message, and even Facebook.
- **PROFILE**
Introduce yourself to classmates with a Canvas profile.
- **AUDIO AND VIDEO MESSAGES**
Give better feedback and help students feel more connected with audio and video messages.
- **MULTIMEDIA INTEGRATIONS**
Insert audio, video, text, images, and more at every learning contact point.

- **EMPOWER GROUPS WITH COLLABORATIVE WORKSPACES**
By using the right technologies in the right ways, Canvas makes working together easier than ever.
- **MOBILE**
Engage students in learning anytime, anywhere from iOS or Android, or any mobile device with a Web-standard browser.
- **TURN STUDENTS INTO CREATORS**
Students can create and share audio, video, and more within assignments, discussions, and collaborative workspaces.
- **WEB CONFERENCING**
Engage in synchronous online communication.
- **OPEN API**
With its open API, Canvas easily integrates with your IT ecosystem.
- **BROWSER SUPPORT**
Connect to Canvas from any Web-standard browser.
- **LTI INTEGRATIONS**
Use the tools you want with LTI integrations.
- **MODERN WEB STANDARDS**
Canvas is built using the same Web technologies that power sites like Google, Facebook, and Twitter.

Lossless Learning

- **CANVAS POLLS**
Gauge comprehension and incorporate formative assessment without the need for “clicker” devices.
- **MAGICMARKER**
Track in real-time how students are performing and demonstrating their learning.
- **QUIZ STATS**
Analyze and improve individual assessments and quiz questions.
- **LEARNING MASTERY FOR STUDENTS**
Empower students to take control of their learning.

(Source: <https://www.canvaslms.com/higher-education/features>)

Capitol Technology University has been using Canvas for over five years. Canvas has proven to be a completely reliable LMS system that provides the necessary technological support for distance education/online learning.

L. Adequacy of Financial Resources with Documentation (as outlined in COMAR 13B.02.03.14):

- 1. Table 1: Resources. Finance data for the first five years of the program implementation are to be entered. Figures should be presented for five years and then totaled by category for each year.**

TABLE 1: RESOURCES

Resource Categories	Year 1	Year 2	Year3	Year 4	Year 5
1. Reallocation Funds	\$12,500	\$0	\$0	\$0	\$0
2. Tuition/Fee Revenue (c + g)	\$144,612	\$307,638	\$490,644	\$706,230	\$932,976
a. Number of F/T Students	0	0	0	0	0
b. Annual tuition/Fee rate	\$0	\$0	\$0	\$0	\$0
c. Total F/T Revenue (a x b)	\$0	\$0	\$0	\$0	\$0
d. Number of P/T Students	19	27	42	59	76
e. Credit Hour Rate	\$618	\$633	\$649	\$665	\$682
f. Annual Credit Hour	18	18	18	18	18
g. Total P/T Revenue (d x e x f)	\$211,356	\$307,638	\$490,644	\$706,230	\$932,976
3. Grants, Contracts and Other External Sources	0	0	0	0	0
4. Other Sources	0	0	0	0	0
TOTAL (Add 1 – 4)	\$223,856	\$307,638	\$490,644	\$706,230	\$932,976

This proposal builds upon an existing degree programs.

- A. Provide a narrative rationale for each of the resource categories. If resources have been or will be reallocated to support the proposed program, briefly discuss those funds.**

1. Reallocated Funds

Capitol Technology University has reallocated funds during Year 1 for support of program and course development, online support, office materials, travel, professional development, and initial marketing. There is no substantial impact on the institution

because of the reallocation of these funds. The reallocated funds will be recovered after the first year. The program is expected to be self-sustaining after Year 1.

2. Tuition and Fee Revenue

Tuition is calculated to include an annual 2.5% tuition increase. A 20% attrition rate has been calculated.

3. Grants and Contracts

There are currently no grants or contracts.

4. Other Sources

There are currently no other sources of funds.

5. Total Year

No additional explanation or comments needed.

2. **Table 2: Expenditure.** Finance data for the first five years of the program implementation are to be entered. Figures should be presented for five years and then totaled by category for each year.

TABLE 2: EXPENDITURES

Expenditure Category	Year 1	Year2	Year 3	Year 4	Year 5
1. Faculty (b + c below)	\$144,000	\$184,500	\$226,937	\$310,147	\$397,374
a. #FTE	2	2.5	3	4	5
b. Total Salary	\$120,000	\$153,750	\$189,114	\$258,456	\$331,145
c. Total Benefits (20% of salaries)	\$24,000	\$30,750	\$37,823	\$51,691	\$66,229
2. Admin Staff (b + c below)	\$4,942	\$5,090	\$5,243	\$5,374	\$5,243
a. #FTE	.07	.07	.07	.07	.07
b. Total Salary	\$4,084	\$4,207	\$4,333	\$4,441	\$5,508
c. Total Benefits	\$858	\$883	\$910	\$933	\$956
3. Support Staff (b + c below)	\$57,475	\$87,638	\$119,772	\$153,460	\$188,755
a. #FTE	1.00	1.5	2	2.5	3
b. Total Salary	\$47,500	\$73,032	\$99,810	\$127,883	\$157,296
c. Total Benefits	\$9,975	\$14,606	\$19,962	\$25,577	\$31,459
4. Technical Support and Equipment	\$1,235	\$1,890	\$3,150	\$4,720	\$6,460
5. Library	\$0	\$0	\$0	\$0	\$0
6. New or Renovated Space	\$0	\$0	\$0	\$0	\$0
7. Other Expenses	\$25,250	\$27,250	\$29,250	\$31,250	\$33,250
TOTAL (ADD 1-7)	\$232,902	\$306,368	\$384,352	\$504,951	\$631,082

- A. Provide a narrative rationale for each expenditure category. If expenditures have been or will be reallocated to support the proposed program, briefly discuss those funds.**

1. Faculty

Table 2 reflects the faculty hours in total, but this does not imply that these are new hire requirements.

2. Administrative Staff

Capitol Technology University will continue with current the administrative staff through the proposed time period.

3. Support Staff

Capitol Technology University will continue with current administrative staff through year two. Additional support staff will be added in Years 2-5.

4. Technical Support and Equipment

Software for courses is available free to students or is freeware. Additional licenses for the LMS will be purchased by the university at the rate of \$65 per student in Year 1; the license fee per student is calculated to increase at \$5 per year per student. No additional equipment is needed.

5. Library

Money has been allocated for additional materials to be added to the on campus and virtual libraries to ensure the literature remains current and relevant. However, it has been determined that the current material serves the needs of this degree due to the extensive online database.

6. New or Renovated Space

No new or renovated space is needed.

7. Other Expenses

Funds have been allocated for office materials, travel, professional development, course development, marketing, additional scholarships.

8. Total Year

No additional explanation or comments needed.

M. Adequacy of Provisions for Evaluation of Program (as outlined in COMAR 13B.02.03.15):

1. Discuss procedures for evaluating courses, faculty and student learning outcomes.

The assessment process at the university consists of a series of events throughout the Academic Year. The results of each event are gathered by the University Assessment Team and stored in Canvas for analysis and use in annual reports, assessments, etc. The University Assessment Team analyzes the results, develops any necessary action plans, and monitors implementation of the action plans.

Academic Year Assessment Events:

Fall Semester:

- At the August Faculty Retreat, the faculty reviews any outstanding student learning challenges that have not been adequately addressed. The issues are brought to the University Academic Dean for review and development of implementation plans.
- Faculty submit performance plans consistent with the mission and goals of the university and department. The document is reviewed and approved with the University Academic Dean.
- Department Chairs and University Academic Dean review the Graduating Student Survey data.
- Department Chairs and University Academic Dean review student internship evaluations.
- Department Chairs and University Academic Dean review grade distribution reports from the spring and summer semesters.
- Department Chairs and University Academic Dean review student course evaluations from the Summer Semester.
- Departments conduct Industrial Advisory Board meetings to review academic curriculum recommendations. The Advisory Board meets to begin curriculum review or address special issues that may arise related to curriculum. Based on an analysis and evaluation of the results, the University Academic Dean, faculty and the advisory boards will develop the most effective strategy to move the changes forward.
 - NOTE: A complete curriculum review for degrees in each department occurs every two years. In most cases, the changes only require that the University Academic Dean inform the Chief Academic Officer and provide a report that includes a justification and the impact of the changes as well as a strategic plan. Significant changes normally require the approval of the Chief Academic Officer and the Executive Council.
- University Academic Dean and Vice President for Academic Affairs attend the Student Town Hall and review student feedback with department chairs.
- Department Chairs conduct interviews with potential employers at the Fall Career Fair.
- The University Academic Dean meets with the faculty to review the student learning progress and discuss needed changes.

Spring Semester:

- Faculty Performance Plans are reviewed with faculty to identify issues of divergence and to adjust the plan as needed.
- Department Chairs and University Academic Dean review grade distribution reports from the Fall Semester.
- Department Chairs and University Academic Dean review the Graduating Student Survey data.
- Department Chairs and University Academic Dean review student course evaluations from the Fall Semester and the Spring Semester (in May before the Summer Semester begins).
- Department Chairs and University Academic Dean meet to review the content of the graduating student, alumni, and course surveys to ensure the surveys continue to meet the University's assessment needs.
- At Annual Faculty Summit in May, the faculty review and discuss student learning challenges from the past academic year and provide recommendations to the Academic Dean for review and development of implementation plans.
- Department Chairs conduct interviews with potential employers at the Spring Career Fair.

- Departments conduct Industrial Advisory Board meetings to review academic curriculum recommendations.

In addition to these summative assessments, the University Academic Dean meets with the Department Chairs on a weekly basis to review current student progress. This formative assessment allows for immediate minor changes, which increase faculty effectiveness and, ultimately, student outcomes.

The Faculty Senate meets monthly during August through April. The Faculty Senate addresses issues that impact student outcomes as those issues emerge. The leadership of the Faculty Senate then provides a report on the matter to the University Academic Dean. The report may include a recommendation or a request to move forward with a committee to further examine the issue. In most cases, the changes only require the University Academic Dean to inform the Chief Academic Officer and provide a report that includes a justification and the impact of changes as well as a strategic plan. Significant changes normally require the approval of the Chief Academic Officer and the Executive Council.

2. **Explain how the institution will evaluate the proposed program's educational effectiveness, including assessments of student learning outcomes, student retention, student and faculty satisfaction, and cost-effectiveness.**

Student Learning Outcomes:

Student learning outcomes for the proposed **M.S. in Construction Safety** will be measured using the instruments identified in Section G and Section M as well as the assigned rubrics and assessment measures (e.g., competency exams/projects, case study exams) dictated by the accreditation requirements of the university's regional accreditor [i.e., Middle States Commission in Higher Education (MSCHE)] and our degree specific accrediting organizations (i.e., BCSP, IACBE, ABET, NSA, DHS). This program is designed to meet the requirements of MSCHE as well as BCSP. The program will be reviewed for accreditation by MSCHE and BCSP. The University is in good standing with all its accrediting bodies.

Student Retention:

The University maintains a comprehensive student retention program under the Vice President for Student Engagement. The program assesses student retention at all levels, including individual courses and degree. During the semester and term, the University's Drop-Out Detective capability, within its Learning Management System (Canvas), provides an early alert at the course level to potential issues related to retention. Within the Office of Student Life, Academic Advisors monitor Drop-Out Detective and contact students who appear to have issues affecting their academic performance. The Graduate Academic Advisors work with each student to create a plan to remove any barriers to success. The Graduate Academic Advisors also work with the course instructors as needed to gain additional insight that may be helpful to correcting the situation.

Each student also meets with their Academic Advisor each semester to evaluate their progress toward degree completion. An updated plan of action is developed for each student for their next semester's registration and each succeeding semester through degree completion.

The Vice President for Student Engagement also meets on a regular basis with the Chief Academic Officer to review the student retention within each degree program and address any issues that appear to be impediments to degree completion.

Student and Faculty Satisfaction:

Evaluations and assessment of Student and Faculty satisfaction occur every semester. Faculty members are evaluated every semester by students enrolled in their courses. Students are required to complete a course evaluation online within a specified time frame at the end of the semester for every enrolled course or they are locked out of Canvas (the University's Learning Management System) until they complete each survey. Every faculty member is also required to review each of their courses for the semester.

The Department Chairs and University Academic Dean review the student evaluations for every course offered at the University. The Department Chairs and University Academic Dean also review faculty satisfaction every semester. If changes are needed at the course level, the changes are developed and implemented by the faculty responsible for the courses upon approval of the University Academic Dean. If changes are needed at the faculty level, the Department Chairs will make the changes. At the end of this cycle, an evaluation is repeated and the results are analyzed with the appropriate stakeholders regarding the effectiveness of the changes. This is an ongoing process. The University has a team in charge of outcomes and assessment supporting the formal assessment measures.

Cost Effectiveness:

Based on the year-long inputs, evaluations, and reviews described in Section M from faculty, students, industry representatives, and Department Chairs, the University Academic Dean prepares the proposed academic budget for each program for the upcoming year. Budget increases are tied to intended student learning improvements and key strategic initiatives.

Each academic program is also monitored by the Vice President for Finance and Administration throughout every semester and term for its cost effectiveness. Additionally, the revenue and costs of every University program are reviewed annually by the Executive Council and Board of Trustees prior to approving the next year's budget.

N. Consistency with the State's Minority Student Achievement goals (as outlined in COMAR 13B.02.03.05 and in the State Plan for Post-Secondary Education):

- 1. Discuss how the proposed program addresses minority student access & success, and the institution's cultural diversity goals and initiatives.**

Capitol Technology University is a majority/minority school. Our programs attract a diverse set of students. Special attention is provided to recruit females into the STEM and multidisciplinary programs at all degree levels – undergraduate, master's, and doctoral. The University also recruits minority populations for all of its undergraduate degrees as well as for its graduate level degrees: M.B.A., M.S. in Aviation, M.S. in Aviation Cybersecurity, M.S. in Computer Science, M.S. in Critical Infrastructure, M.S. in Cyber Analytics, M.S. in Cybersecurity, M.S. in Engineering Technology, M.S. in Information Systems Management, M.S. in Internet Engineering, M.S. in Unmanned and Autonomous Systems Policy and Risk Management, T.M.B.A. in Business Analytics and Data Science, T.M.B.A. in Cybersecurity, D.Sc. in Cybersecurity, Ph.D. in

Aviation, Ph.D. in Business Analytics and Decision Sciences, Ph.D. in Critical Infrastructure, Ph.D. in Manufacturing, Ph.D. in Product Management, Ph.D. in Technology, Ph.D. in Technology/M.S. in Research Methods Combination Program, and Ph.D. in Unmanned Systems Applications. The same attention will be given to the **M.S. in Construction Safety**.

O. Relationship to Low Productivity Programs Identified by the Commission:

- 1. If the proposed program is directly related to an identified low productivity program, discuss how the fiscal resources (including faculty, administration, library resources and general operating expenses) may be redistributed to this program.**

This program is not associated with a low productivity program identified by the Commission.

P. Adequacy of Distance Education Programs (as outlined in COMAR 13B.02.03.22)

- 1. Provide affirmation and any appropriate evidence that the institution is eligible to provide Distance Education.**

Capitol Technology University is fully eligible to provide distance education. The university has a long history of providing high-quality distance education. The university is accredited regionally by the Middle States Commission in Higher Education (MSCHE) and through four specialized accrediting organizations: International Accreditation Council of Business Education (IACBE), Accreditation Board for Engineering and Technology (ABET), NSA, and DHS. All five accrediting organizations have reviewed the University's distance education program as part of their accreditation process. Capitol Technology University is fully accredited by MSCHE, IACBE, ABET, NSA, and DHS. The University is in good standing with all its accrediting bodies.

- 2. Provide assurance and any appropriate evidence that the institution complies with the C-RAC guidelines, particularly as it relates to the proposed program.**

Capitol Technology University has a long history of providing high quality distance education/online learning that complies with the Council of Regional Accrediting Commissions (C-RAC) Interregional Guidelines for the Evaluation of Distance Education. The University will also continue to comply with the C-RAC guidelines with the proposed **M.S. in Construction Safety** program.

a. Council of Regional Accrediting Commissions (C-RAC) Interregional Guidelines for the Evaluation of Distance Education.

- 1. Online learning is appropriate to the institution's mission and purposes.**

Online learning is consistent with the institution's mission, purpose and history. Please refer to Section A of this proposal.

- 2. The institution's plans for developing, sustaining, and, if appropriate, expanding online learning offerings are integrated into its regular planning and evaluation processes.**

All programs at the University – online, hybrid, and on-ground – are subject to the same regular planning, assessment, and evaluation processes. Please see Section M of this proposal for the detailed process.

3. Online learning is incorporated into the institution’s systems of governance and academic oversight.

All programs at the University – online, hybrid, and on-ground – are subject to the same systems of governance and academic oversight. Please refer to Section G and Section M of this proposal.

4. Curricula for the institution’s online learning offerings are coherent, cohesive, and comparable in academic rigor to programs offered in traditional instructional formats.

Online programs/courses meet the same accreditation standards, goals, objectives, and outcomes as traditional on-ground instruction at the University. The online course development process incorporated the Quality Matters research-based set of standards for quality online course design to ensure academic rigor of the online course is comparable to the traditionally offered course. The University Academic Deans, Department Chairs, and faculty review curriculum annually. Courses are reviewed at the end of each term of course delivery. This process applies to online and traditional courses. In addition, advisory boards are engaged in the monitoring of course quality to ensure quality standards are met regardless of the delivery platform.

5. The institution evaluates the effectiveness of its online learning offerings, including the extent to which the online learning goals are achieved, and uses the results of its evaluations to enhance the attainment of the goals.

Online programs/courses meet the same accreditation standards, goal, objectives, and outcomes as traditional classroom delivery. Learning platforms are chosen to ensure high standards of the technical elements of the course. The University Academic Deans monitor all course conversions from in-class to online to ensure the online course is academically equivalent to traditionally offered course and the technology is appropriate to support the expected rigor and breadth of the course.

6. Faculty responsible for delivering the online learning curricula and evaluating the students’ success in achieving the online learning goals are appropriately qualified and effectively supported.

The Department of Business and Information Sciences, where this degree will be sponsored, is staffed by qualified teaching Department Chair, and other appropriately credentialed faculty.

The evaluation of programs and courses are done using the same process as all other programs at the University (please see Section M of this document). All Capitol Technology University faculty teach in the traditional classroom environment and online. Please see the faculty qualifications in Section I of this document.

7. The institution provides effective student and academic services to support students enrolled in online learning offerings.

Students can receive assistance in using online learning technology via several avenues. Aides are available to meet with students and provide tutoring support in both subject matter and use of the technology. Tutors are available in live real-time sessions using Adobe Connect or other agreed upon tools. Pre-recorded online tutorials are also available.

In addition to faculty support, on ground and online tutoring services are available to students in a one-on-one environment.

Laboratories (on ground and virtual) are available for use by all students and are staffed by faculty and tutoring staff who provide academic support.

Library services and resources are appropriate and adequate. Please refer to Section J of this document and the attached letter from the University President. The library adequately supports the students learning needs.

8. The institution provides sufficient resources to support and, if appropriate, expand its online learning offerings.

The University has made the financial commitment to the program. (Please refer to Section L). The University has a proven track-record of supporting degree completion for several years.

9. The institution assures the integrity of its online offerings.

Faculty currently employed at the University will act as an Internal Advisory Board for program changes, including course and program development. All current faculty were selected based on domain experience and program-related teaching experience.

When new faculty or outside consultants are necessary for the design of courses offered, our Human Resource Department initiates a rigorous search and screening process to identify appropriate faculty to design and teach online courses. All new faculty are selected on domain experience and program-related teaching experience.

The University online platform offers several avenues to support instructors engaged in online learning. The Director of our Online Learning Division is highly skilled and trained in faculty development. Several seminars and online tutorials are available to the faculty every year. Mentors are assigned to new faculty. Best practice sharing is facilitated through the University Academic Deans, Department Chairs, and formal meetings.

The assessment for distance learning classes and students in this program will be the same as for all doctoral programs at the University. Faculty will provide required data on student achievement. The Learning Management System provides data on student achievement. Proof of these assessments is available during the class and post-class to the Executive Council, University Academic Deans, and Department Chairs. On an annual

basis, the information is reported to the University's accreditation authorities (e.g., MSCHE, IACBE, ABET, NSA, and DHS).