UNIVERSITY OF MARYLAND EASTERN SHORE
Office of the President

April 15, 2026

Dr. Elena Quiroz-Livanis
Acting Secretary of Education
Maryland Higher Education Commission
217 E. Redwood Street, Suite 2100
Baltimore, MD 21202

RE: New Academic Program (Bachelor of Science in Civil Engineering)

Dear Dr. Quiroz-Livanis:

The University of Maryland Eastern Shore (UMES) hereby submits a proposal to begin offering a Bachelor of Science in Civil Engineering within the School of Business, Engineering, Applied Sciences, Technology, and Tourism Management (S-BEAST-TM).

Consistent with its mission, UMES seeks to expand its capacity to offer unique and/or critical certificate and degree programs. Accordingly, UMES has developed a Bachelor of Science in Civil Engineering degree designed to align with the accreditation standards of the Accreditation Board for Engineering and Technology (ABET). The program will equip students with the knowledge and skills necessary to support modern infrastructure development, advance engineering education on the Eastern Shore and across Maryland, and address critical workforce needs.

The curriculum integrates mathematics, science, and engineering principles with core coursework in structural, transportation, geotechnical, environmental, and water resources engineering. It prepares a diverse and highly skilled workforce for professional licensure, graduate study, and careers in both the public and private sectors by addressing real-world challenges and advancing infrastructure development, sustainability, and community well-being. The program also complements existing engineering offerings within the University System of Maryland.

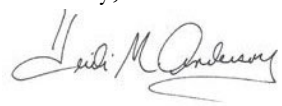
The proposed degree program will position UMES at the forefront of educational innovation in STEM-related academic programs. It aligns with UMES's strategic priorities by advancing academic excellence, workforce development, innovation, and equitable access to STEM education. The Maryland construction industry is currently experiencing a transition period marked by strong federally backed infrastructure investments, growth in specialized sectors such as data centers, and persistent labor shortages. The proposed Bachelor of Science in Civil Engineering degree is designed to respond to this demand by providing a comprehensive curriculum that equips graduates with the skills necessary to design, analyze, and implement complex infrastructure projects. Graduates of the program will be well prepared to excel in a dynamic professional environment, meet evolving industry needs, and contribute to sustainable and innovative civil engineering solutions.

The UMES campus is in Somerset County, Maryland. The Bachelor of Science in Civil Engineering degree will expand the educational opportunities for educationally disadvantaged students by developing a high-quality and innovative academic program that aligns with the educational needs of the region and the State of Maryland. The mission of the proposed program is to provide students and working professionals with advanced training in the discipline and to contribute to the economic development in the state of Maryland, especially in the Eastern Shore region where learning opportunities in advanced engineering disciplines are severely limited.

The attached proposal has undergone the established UMES curriculum approval process, and I fully support the proposed program.

Thank you for your consideration.

Sincerely,



Heidi M. Anderson, Ph.D., FAPhA
President

Copy:
Dr. Rondall Allen, Provost and Vice President for Academic Affairs
Dr. Derrek Dunn, Dean, School of Business and Technology
Dr. Ishmail Farajpour, Department Chair, The Built Environment

Office Use Only: PP#

Cover Sheet for In-State Institutions
New Program or Substantial Modification to Existing Program

Institution Submitting Proposal	University of Maryland Eastern Shore

Each action below requires a separate proposal and cover sheet.

- (●) New Academic Program
- ( ) New Area of Concentration
- ( ) New Degree Level Approval
- ( ) New Stand-Alone Certificate
- ( ) Off Campus Program
- ( ) Substantial Change to a Degree Program
- ( ) Substantial Change to an Area of Concentration
- ( ) Substantial Change to a Certificate Program
- ( ) Cooperative Degree Program
- ( ) Offer Program at Regional Higher Education Center

Payment Submitted: (●) Yes ( ) No Payment Type: (●) R*STARS # JJ544657 ( ) Check # Payment Amount: 850 Date Submitted: 4/3/25

Department Proposing Program	Department of the Built Environment
Degree Level and Degree Type	Bachelor of Science
Title of Proposed Program	Civil Engineering
Total Number of Credits	120
Suggested Codes	HEGIS: 908 CIP: 140801
Program Modality	(●) On-campus ( ) Distance Education (fully online) ( ) Both
Program Resources	(●) Using Existing Resources ( ) Requiring New Resources
Projected Implementation Date (must be 60 days from proposal submisison as per COMAR 13B.02.03.03)	(●) Fall ( ) Spring ( ) Summer Year: 2026
Provide Link to Most Recent Academic Catalog	URL: https://wwwcp.umes.edu/schedule/academic-catalogs/
Preferred Contact for this Proposal	Name: Leesa Thomas Banks Title: Interim Vice Provost for Academic Affairs Phone: 410-651-7591 Email: lpthomasbanks@umes.edu
President/Chief Executive	Type Name: Heidi M Anderson Signature: Heidi M Anderson Date: 4/15/26
	Date of Approval/Endorsement by Governing Board: 12/9/2025

Revised 4/2025

Proposal for New Four-Year Undergraduate Degree Program

Bachelor of Science in Civil Engineering

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.

The Department of the Built Environment at the University of Maryland Eastern Shore (UMES) proposes expanding its degree offerings with the establishment of a Bachelor of Science in Civil Engineering. This four-year degree program is designed to align with the accreditation standards set by the Accreditation Board for Engineering and Technology (ABET). ABET's 2026-2027 Criteria for Accrediting Civil and Similarly Named Engineering programs guidelines state, "The program must prepare graduates to apply mathematics through differential equations, probability and statistics, calculus-based physics, chemistry, and either computer science, data science, or an additional area of basic science; apply engineering mechanics, materials science, and numerical methods relevant to civil engineering; apply principles of sustainability, risk, and resilience to civil engineering problems; apply the engineering design process in at least two civil engineering contexts; apply an engineering code of ethics to ethical dilemmas; solve complex engineering problems in at least four specialty areas appropriate to civil engineering; conduct of experiments in at least two civil engineering contexts and reporting of results; explain concepts and principles in project management and engineering economics; explain professional attitudes and responsibilities of a civil engineer, including licensure and safety." (Source: https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-engineering-programs-2026-2027/)

The curriculum comprises core civil engineering courses, foundational coursework in science and mathematics, and a selection of major electives, alongside the university's general education requirements. It is designed to provide students with a comprehensive foundation across key subdisciplines, including civil and structural engineering, transportation engineering, geotechnical engineering, environmental engineering, surveying, and water resources engineering.

The University of Maryland Eastern Shore (UMES), the state's historically Black 1890 land-grant institution, grounds its purpose and uniqueness in distinctive opportunities for learning, discovery, and engagement across the arts and sciences, education, technology, engineering, agriculture, business, and health professions. UMES offers degrees at bachelor's, master's, and doctoral levels (UMES Mission: wwwcp.umes.edu/about/mission/). The proposed Bachelor of Science in Civil

Engineering directly aligns with the university's mission by advancing educational and professional opportunities in engineering and supporting the institution's broader goals of academic excellence, innovation, and community engagement.

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

The proposed undergraduate Civil Engineering program directly supports the strategic goals outlined in the University of Maryland Eastern Shore (UMES) Strategic Plan (https://wwwcp.umes.edu/president/strategic-plan/). Specifically, the program aligns with the following priorities:

Priority 1: Goal 1.1: Attract, retain, and graduate more aspiring students at the undergraduate and graduate levels.

Description: The Civil Engineering program offers a dynamic and high-demand field of study that appeals to a diverse population of STEM students. Employment of civil engineers is projected to grow 5% from 2024–2034, with about 23,600 openings each year due to infrastructure needs and workforce replacement (U.S. Bureau of Labor Statistics, 2024). With a comprehensive curriculum and emphasis on practical, real-world applications, the program is designed to enhance student engagement, support retention, and promote successful graduation outcomes. (https://www.bls.gov/ooh/architecture-and-engineering/civil-engineers.htm)

Priority 1: Goal 1.7: Pilot innovative pathways for working professionals that respond to workforce demands.

Description: Although primarily structured as a traditional four-year undergraduate program, the Civil Engineering program may be adapted in the future to include evening or part-time options. This flexibility could create alternative pathways for working professionals seeking formal credentials in Civil Engineering.

Priority 2: Goal 2.3: Develop innovative programs that result in opportunities for new credentials.

Description: The ABET-aligned curriculum ensures that graduates are well prepared to pursue professional credentials, including the Fundamentals of Engineering (FE) exam, a critical first step toward obtaining Professional Engineer (PE) licensure.

Priority 2: Goal 2.6: Strengthen programs, concentrations, and certificates, making them more relevant to the workforce and societal needs.

Description: The Civil Engineering program addresses the growing demand for professionals skilled in civil and structural engineering, transportation engineering, geotechnical engineering, environmental engineering, surveying, and water resources engineering (American Society of Civil Engineers, 2025,

Civil engineering salary report). The curriculum ensures relevance to workforce needs and responsiveness to societal challenges.

Priority 3: Goal 3.2: *Expand the number of graduates in fields critical to Maryland's economy: STEAM, cyber, and healthcare.*

Description: The Civil Engineering program contributes to Maryland's STEAM workforce by preparing skilled professionals for careers in structural design, transportation systems, geotechnical engineering, water resources management, and infrastructure development.

Priority 3: Goal 3.3: *Diversify and strengthen Maryland's knowledge workforce by expanding the pipeline of underrepresented minority students entering critical workforce fields (STEAM, cyber, health care, education, social work, human services, technology).*

Description: As a historically Black institution, UMES is uniquely positioned to diversify the civil engineering workforce by graduating underrepresented minority students who are well prepared to contribute meaningfully to this vital field. According to the Fall 2025 Census Enrollment Summary, UMES serves a diverse student population, with an ethnic distribution of: Black 64.5%, White 14%, Native American 0.2%, Asian 2.2%, Hispanic 3.2%, International 4.5%, Multi & Non-Hispanic 5.4%, and Unknown 5.9%. (University System of Maryland, 2025, https://www.usmd.edu/IRIS/?view=UMES)

Priority 3: Goal 3.4: *Develop new, revise, and enhance existing academic programs to remain current with evolving workforce demands.*

Description: The program will remain responsive to industry advancements, continuously evolving to equip graduates with the knowledge and skills needed to excel in emerging technologies and practices within the civil engineering profession.

The proposed degree program will help the University of Maryland Eastern Shore achieve its strategic goals while strengthening its position as a leader in educational innovation within civil engineering. Through the development of innovative academic pathways, strong industry partnerships, and a commitment to serving underrepresented populations, the Civil Engineering program will not only advance the mission of UMES but also support the economic advancement and workplace development goals of the state of Maryland.

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.)

The University of Maryland Eastern Shore will support the proposed program through the resources, facilities, and faculty currently in place within the Department of the Built Environment, consistent with the level of support provided to existing

academic programs. This commitment ensures effective program delivery and student success. (Please see section L for more details.)

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

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

The University administration is committed to adequately funding this program. With support from the HBCU Lawsuit Settlement fund, UMES, and the School of Business, Engineering, Applied Sciences, Technology, and Tourism Management, the Department of the Built Environment is equipped with the necessary resources and is committed to supporting the program in every way, including ongoing administrative, financial, and technical support. The resources, expenditures, and financial sustainability of the program are outlined in section L.

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

The University of Maryland Eastern Shore is committed to supporting the program with sufficient time for enrolled students to complete the Bachelor of Science in Civil Engineering degree. To accomplish the strategic goals identified earlier and maintain the quality of the department, continued support of this program and its students through graduation is essential to the UMES mission and goals. This commitment includes the allocation of administrative support, instructional facilities, and necessary financial resources to ensure program continuity through students' graduation.

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 the advancement and evolution of knowledge.

The Maryland construction industry is experiencing a transition period characterized by strong federally-backed infrastructure projects, a pivot toward specialized sectors such as data centers, and ongoing labor shortages. The proposed Bachelor of Science in Civil Engineering degree is designed to address this demand by providing a comprehensive curriculum that equips graduates with the knowledge and skills necessary to design, analyze, and implement infrastructure projects. This program will prepare students to

excel in a dynamic career, meet industry needs, and contribute to the development of sustainable and innovative civil engineering solutions. Key drivers of current industry demand include significant federally supported infrastructure investments—such as the Frederick Douglass Tunnel Program and the revived Red Line light rail project—along with legislative initiatives like the Starter and Silver Homes Act of 2026 aimed at expanding affordable housing development. These efforts are increasing the need for civil engineers with expertise in transportation systems, structural design, geotechnical engineering, water resources, and sustainable infrastructure.

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

The University of Maryland Eastern Shore (UMES) is strategically located in Somerset County, one of the most economically disadvantaged counties in Maryland, according to the U.S. Census Bureau. The proposed B.S. in Civil Engineering program is designed to offer minority, and educationally disadvantaged students access to a high-quality education in a field experiencing robust growth.

Currently, civil engineering professionals are predominantly White (78.0%), followed by Hispanic or Latino (12.5%), Asian (10.7%), and Black or African American (9.0%), indicating a clear underrepresentation of Black professionals in the field (U.S. Bureau of Labor Statistics, 2025; https://www.bls.gov/cps/cpsaat11.htm). According to recent U.S. Census data, the Black population in the United States represents approximately 13.7% of the total population.

As a historically Black university, UMES is uniquely positioned to address this disparity. Graduates of the proposed program will be well-prepared to secure competitive entry-level positions with strong earning potential, contributing not only to their personal advancement but also to the economic and societal development of the Eastern Shore and the State of Maryland. This program presents a critical opportunity to diversify the civil engineering workforce and uplift local communities by fostering greater representation and opportunity in the field.

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

The proposed B.S. in Civil Engineering program will offer high-quality and distinctive educational experiences, thereby strengthening UMES's role as one of the four Historically Black Institutions (HBIs) in the state of Maryland.

Historically Black Institutions play a critical role in increasing access to STEM education for underrepresented students and in producing a more diverse engineering workforce. Black or African Americans represent only about 9.0% of the civil engineering workforce, compared with 13.7% of the U.S. population (U.S. Bureau of Labor Statistics, 2025). By expanding engineering opportunities at UMES, the program will help address workforce needs in civil and infrastructure development while increasing the number of minority graduates in a vital STEM discipline. In doing so, the program will contribute to regional and statewide economic development and support broader efforts to diversify the engineering profession.

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

According to the 2022 *Maryland State Plan for Higher Education*, developed by the Maryland Higher Education Commission (MHEC), three primary goals for the state's postsecondary education system are outlined:

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

The B.S. in Civil Engineering program will prepare students to oversee construction projects and ensure their successful completion in accordance with engineering plans and specifications. The program provides high-quality education to all Maryland residents, including those from disadvantaged backgrounds, creating a pathway to a rewarding career in civil engineering. It equips students with the knowledge and experience that support the development of a skilled and diverse workforce for the state.

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

The proposed Civil Engineering program aligns with UMES's commitment to student success. With a well-designed curriculum, access to advanced laboratories and modern equipment, dedicated faculty, and partnerships with industry, the program will provide students with opportunities for internships and experiential learning. These experiences will support students throughout their academic journey while strengthening pathways to timely graduation and successful job placement.

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

The proposed program advances Maryland's "Economic Growth and Vitality" goal by enhancing education and training at Historically Black Institutions. The B.S. in Civil Engineering will equip students with

industry-relevant skills and experience in emerging technologies, thereby contributing to the state's economic progress and workforce development.

UMES's significance is further underscored in Priority 5 of the 2022 *Maryland State Plan for Higher Education:* "The need to strengthen and expand the capacity of historically black colleges and universities to provide high-quality and unique educational programs."

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.

Graduates of the proposed B.S. in Civil Engineering program will be prepared for careers in industries such as structural design, infrastructure, transportation systems, geotechnical engineering, environmental engineering, and water resources engineering management. These individuals will be qualified for entry-level to mid-level roles with engineering consulting firms, construction companies, and public agencies responsible for planning, designing, building, and maintaining infrastructure such as highways, bridges, buildings, water systems, and environmental protection projects. These opportunities reflect the sustained demand for civil engineers across Maryland and the broader region.

Regional companies such as Whiting-Turner Contracting Company, DPR Construction, Harkins Builders, Inc., Davis, Bowen & Friedel, Inc., and Skanska USA Building, Inc. are representative of employers expected to hire graduates from the program.

Currently, graduates of the Construction Management Technology program at UMES, which also confers a Bachelor of Science degree, are employed by the aforementioned organizations as well as other small and large construction firms within Maryland and across the U.S. These alumni have secured roles as project engineers, project managers, project superintendents, building inspectors, site managers, and safety managers. Graduates with bachelor's degrees normally start with entry-level positions.

Graduates of the proposed B.S. in Civil Engineering program will be prepared for technical roles in the planning, design, and analysis of civil and infrastructure systems. Career paths include civil, structural, transportation, geotechnical, and environmental or water resources engineering. In these roles, professionals design and evaluate structures, transportation networks, foundations, and water systems to support the development and maintenance of public and private infrastructure.

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 proposed program is designed to meet the growing demand for civil engineers in key sectors such as infrastructure planning and design, transportation systems, geotechnical engineering, construction management, environmental systems, surveying, and water resources management. Employers in these sectors, including engineering consulting firms, construction companies, and public agencies responsible for infrastructure development and maintenance, are actively seeking professionals with expertise in structural design, site development, and infrastructure systems. Job openings in these areas are expected to remain robust, driven by regional development priorities.

According to the Bureau of Labor Statistics (BLS), the reported number of Civil Engineer jobs in 2024 was 368,900, with a job outlook for 2024-2034 at 5%, which is much faster than average. On average, about 23,600 openings for civil engineers are projected each year over the decade. The median annual wage for entry-level civil engineers with bachelor's degrees was $99,590 in 2024 (Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Civil Engineers, https://www.bls.gov/ooh/architecture-and-engineering/civil-engineers.htm accessed March 7, 2026).

The job search platform *Indeed* lists the following Civil Engineering jobs currently available in the state of Maryland, along with their average salary.

Position	**Average Base Salary**
Entry-Level Civil Engineer	$80,233
Civil Engineer	$96,310
Civil Design Engineer	$79,965
Civil Supervisor	$110,630
Associate Engineer (Civil)	$84,452
Structural Engineer	$98,460
Geotechnical Engineer	$92,735
Transportation Engineer	$127,634
Bridge Design Engineer	$101,809
Water Resources Engineer	$101,537
Source: Indeed Career Salaries https://www.indeed.com/career/salaries	

A study of the job market for civil Engineers (CareerExplorer, n.d.) https://www.careerexplorer.com/careers/civil-engineer/job-market/ reports 7,110 civil engineering jobs in Maryland, ranking the state 16th in the country for employment in this field. In addition, projections from CareerOneStop

estimate that Maryland will experience about 390 annual job openings for civil engineers. (https://cloudfront.careeronestop.org/Toolkit/StateAndLocal/ProjectedEmployment.aspx) This data reflects the demand for civil engineering professionals with strong technical expertise to support infrastructure development and related initiatives.

Continued population growth, economic expansion, and the need to modernize aging infrastructure are driving demand for civil engineering professionals in the United States. According to the U.S. Bureau of Labor Statistics, employment of civil engineers is projected to grow by about 5% from 2024 to 2034, with roughly 23,600 job openings annually due to employment growth and workforce replacement. In addition, the U.S. Census Bureau projects that the U.S. population will continue to grow over the next decade, reaching approximately 363 million by 2034, further increasing demand for transportation systems, water infrastructure, housing, and public works. (U.S. Census Bureau. (2017). National population projections tables: Main series. Retrieved from https://www.census.gov/data/tables/2017/demo/popproj/2017-summary-tables.html)

The proposed B.S. in Civil Engineering will prepare students with the knowledge and skills needed to contribute to this critical field and support the nation's infrastructure and economic development.

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 Bureau of Labor Statistics (BLS) is normally used for employment data and to determine market demand. Data is usually listed for civil engineers (https://www.bls.gov/ooh/architecture-and-engineering/civil-engineers.htm)

   According to the BLS, there were 368,900 civil engineering jobs in 2024, with an expected job growth rate of 5% from 2024 to 2034, which is faster than the average for all occupations. This growth is driven by infrastructure projects and urban development.

   These projections indicate about 23,600 annual openings for civil engineers over the next decade, highlighting the need for a well-trained workforce and the importance of educational programs to meet this demand.

4. **Provide data showing the current and projected supply of prospective graduates.**

The current supply of Civil Engineering graduates in the region is primarily sourced from institutions outside the Eastern Shore. However, there is a gap in local access to ABET-accredited Civil Engineering programs, as none are available on the Eastern Shore. Establishing this program at UMES will not only provide regional students with the opportunity to pursue a high-quality education close to home, but it will also ensure a consistent supply of graduates ready to enter the workforce. These graduates will play a vital role in addressing local infrastructure challenges and meeting the growing demand for skilled engineers.

Once the proposal is approved, the program will seek ABET accreditation following the graduation of its first cohort. ABET accreditation is essential for meeting industry standards and preparing students for successful careers. It also enhances the program's reputation, attracting students, employers, and faculty.
According to the ABET's official database for accredited programs (ABET, 2026)(https://amspub.abet.org/aps/name-search?searchType=program&keyword=Civil%20Engineering&exactMatch=true&degreeLevels=B), there are 373 institutions worldwide that offer ABET-accredited bachelor's degree programs in Civil Engineering, with 278 of these located in the United States. Higher education institutions in Maryland and neighboring states to the Eastern Shore offer ABET-accredited Civil Engineering bachelor's programs, and the number of Civil Engineering degrees awarded in the 2021—2022 academic year, the most recent data currently available on the College Factual website (https://www.collegefactual.com), is provided below:

Institutions	**Location**	**# of Civil Engineering BS Degrees Awarded in 2021-2022**
Johns Hopkins University	Baltimore, MD	7
University of Maryland, College Park	College Park, MD	120
Morgan State University	Baltimore, MD	48
University of Delaware	Newark, DE	53
Liberty University	Lynchburg, VA	84 (Online)
Old Dominion University	Norfolk, VA	50
Virginia Military Institute	Lexington, VA	57
Virginia Polytechnic Institute and State University	Blacksburg, VA	204
University of Virginia	Charlottesville, VA	48
Catholic University of America	Washington, DC	19
University of the District of Columbia	Washington, DC	29
George Washington University	Washington, DC	22
Howard University	Washington, DC	14

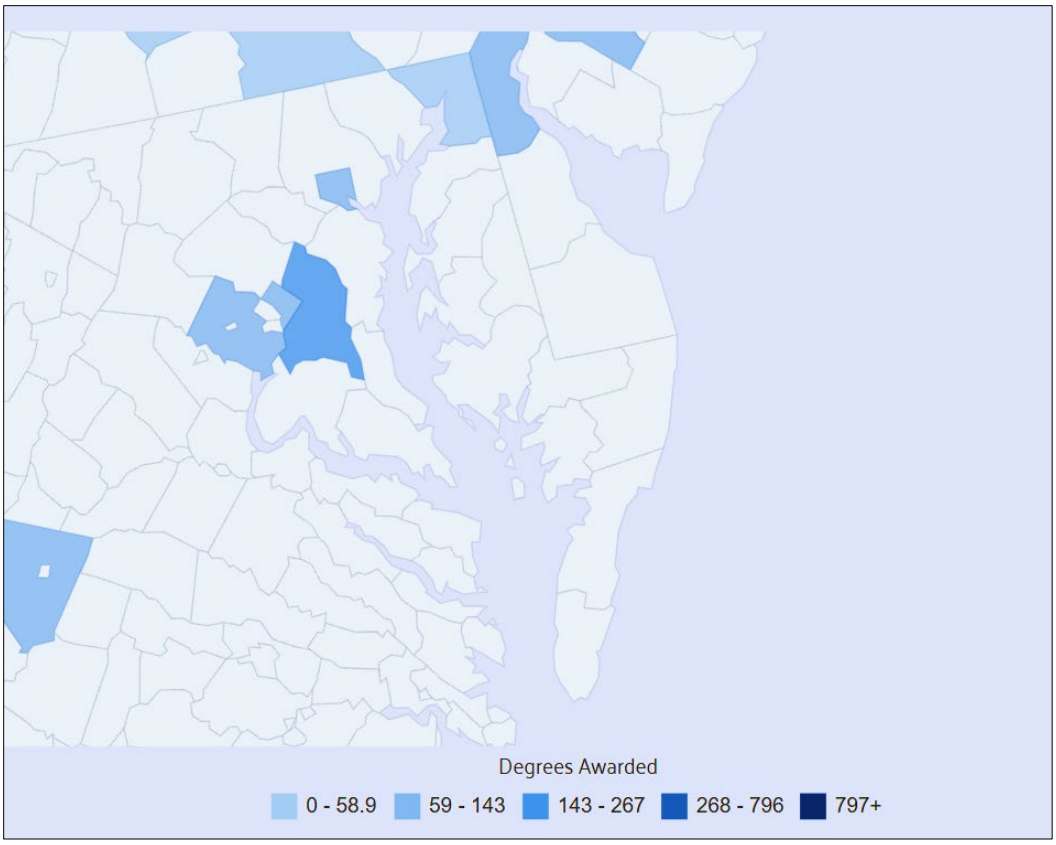
The existing Civil Engineering programs in Maryland and neighboring states are located outside the geographic area served by UMES, leaving the Eastern Shore without a local option.

Establishing a Civil Engineering program at UMES will increase access to high-quality education for regional students, address workforce demands, and support infrastructure development on the Eastern Shore and in surrounding areas.

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.**

   Several institutions in Maryland and the surrounding region offer Civil Engineering programs, but none are located on Maryland's Eastern Shore, resulting in a geographic gap for local students. According to the ABET website (https://amspub.abet.org/aps/name-search?searchType=program&keyword=civil%20engineering&countries=US&states=MD), institutions such as the University of Maryland, College Park, Morgan State University, and the University of Delaware offer similar accredited Civil Engineering bachelor's degree programs. These programs have established reputations and serve a broad student population, including those from outside the immediate area (Map below).



Civil Engineering degrees awarded by the county in the Eastern Shore [Data USA. (n.d.). Civil engineering. https://datausa.io/profile/cip/civil-engineering]

While similar programs exist within the state and surrounding regions, no institution on the Eastern Shore currently offers a Civil Engineering degree. As a result, students interested in this field must leave the region to attend programs elsewhere. At the same time, the Eastern Shore faces growing demand for civil engineers to support infrastructure, transportation, and environmental projects. The proposed UMES Civil Engineering program would address both the regional workforce need and the lack of a local educational pathway, filling a critical gap without duplicating existing offerings in the region.

According to the National Center for Education Statistics, there is currently no Bachelor of Science program in Civil Engineering or closely related fields (Civil Engineering, General,14.0801; Civil Engineering, Other, 14.0899; Structural Engineering, 14.0803; Geotechnical and Geoenvironmental Engineering, 14.0802; Transportation and Highway Engineering, 14.0804; Water Resources Engineering, 14.0805) within a 50-mile radius of Princess Anne, Maryland (Zip Code: 21853).
(source:https://nces.ed.gov/collegenavigator/?s=all&zc=21853&zd=50&of=3&p=14.0805+14.0801+14.0899+14.0802+14.0803+14.0804&l=93)

Within a 100-mile radius, several institutions offer Civil Engineering programs, as summarized in the table below (source: https://nces.ed.gov/collegenavigator/?s=all&zc=21853&zd=100&of=3&p=14.0805+14.0801+14.0899+14.0802+14.0803+14.0804&l=93). However, none are located on the Delmarva Peninsula or Maryland's Eastern Shore, creating a clear geographic gap in access to this field of study.

Institution-Program	Characteristics	City, State	Public/ Private	Tuition and fees (2024-2025)	
				In-state	Out-of-state
George Mason University-Civil and Infrastructure Engineering	--	Fairfax, VA	Public	$14,220	$38,688
George Washington University-Civil Engineering	--	Washington, DC	Private	--	$67,710
Howard University-Civil Engineering	HBCU	Washington, DC	Private	--	$35,810
Johns Hopkins University-Civil Engineering	--	Baltimore, MD	Private	--	$65,230
Morgan State University-Civil Engineering	HBCU	Baltimore, MD	Public	$8,229	$19,124
Old Dominion University-Civil Engineering	--	Norfolk, VA	Public	$12,750	$33,780
The Catholic University of America-Civil Engineering	Roman Catholic	Washington, DC	Private	--	$58,378
University of Maryland, College Park, Civil Engineering; AoC Construction Engineering & Management	--	College Park, MD	Public	$11,809	$41,186
Capitol Technology University, Civil Engineering**	--	Laurel, MD	Private	--	$27,592
University of the District of Columbia-Civil Engineering	HBCU	Washington, DC	Public	$5,662	$12,514
University of Maryland Eastern Shore (UMES)*	**HBCU**	**Princess Anne, MD**	**Public**	**$9,076**	**$20,122**

* UMES does not currently offer Civil Engineering; it is included for comparison.
** Note that, as of May 10, 2026, the Civil Engineering program at Capitol Technology University is not listed in https://nces.ed.gov. This item has been added per the MHEC Institution Program Inventory.

The table below lists all programs with the CIP code 14.0801, as well as programs with the title "Civil Engineering" in the state of Maryland. (Source: MHEC Institution Program Inventory, https://mhec.maryland.gov/institutions_training/pages/searchschool.aspx)

Institution	Johns Hopkins University	Morgan State University	University of Maryland, College Park	Capitol Technology University	University of Maryland Eastern Shore*
Public/Private	Private	Public	Public	Private	Public
Minority-Serving Status	--	HBCU	--	--	HBCU
City, Region	Baltimore, Central MD	Baltimore, Central MD	College Park, Central MD	Laurel, Central MD	Princess Anne, Eastern Shore
Distance from UMES	136mi	139mi	132mi	133mi	--
Cost of Living compared to the Maryland Average[$]	+5% more (↑)	+5% more (↑)	+10% more (↑)	+3% more (↑)	- 13% less (↓)
Program title	CIVIL ENGINEERING (B.S.)	CIVIL ENGINEERING (B.S.)	CIVIL ENGINEERING; Also, AoC CONSTRUCTION ENGINEERING & MANAGEMENT (B.S.)	CIVIL ENGINEERING (B.S.)	CIVIL ENGINEERING (B.S.)*
CIP Code	14.0801	14.0801	14.0801	14.0801	14.0801
Accreditation Status	ABET Accredited	ABET Accredited	ABET Accredited	--	Will seek ABET Accreditation
Mode of Delivery	In-Person	In-Person	In-Person	In-Person	In-Person*
Approximate Department Faculty Size	25	15	32	4	4 + One more will join Fall 2026
Enrollment Fall 2024**	28	200	338	Not available (The program is not currently accepting students.)	--
Program size	Small	Medium	Large	Small	Small
In-State Tuition and Fees per year (2025-2026)[††]	--	$8,346	$12,290	--	$9,365.50
Out-of-State Tuition and Fees per year (2025-2026)[††]	$66,670	$19,456	$42,053	$28,258	$20,910.50
Required Credits	125	120	122	120	120
Internship/Co-op Requirement	Encouraged, but internship not required	Internship not required	Internship not required	Internship not required	Internship required
Technical Elective Courses	2	3	2	2	1
Program similarities	All programs lead to a B.S. in Civil Engineering. Each program includes foundational coursework in mathematics, physics, engineering science, engineering design, and laboratory experiences. Core subject areas typically include statics, dynamics, mechanics of materials, structural analysis, transportation engineering, environmental engineering, geotechnical engineering, and hydraulics/hydrology, as well as surveying and a capstone design project. All programs have ABET-oriented student outcomes. All programs				

	are primarily delivered in person and are designed to prepare students for professional engineering practice and licensure pathways.				
Program differences/Distinctions	Research-intensive private institution with an analytical, systems-oriented Civil Engineering program.	Urban public HBCU offering a traditional Civil Engineering program	Major public research university with a large, comprehensive civil engineering program	Technology-focused private institution with a small Civil Engineering Program	Public HBCU serving the Eastern Shore and underrepresented communities; Civil Engineering program focused on the regional workforce needs
* Proposed program pending approval $ Economic Research Institute, Cost of living: https://www.erieri.com/cost-of-living/united-states/maryland **Source:https://mhec.maryland.gov/publications/Documents/Research/AnnualReports/TRENDS%20IN%20ENROLLMENT%20BY%20PROGRAM%20-%20Fall%202024%20FINAL.pdf †† Data collected from official university financial webpages: Johns Hopkins University: https://www.jhu.edu/admissions/tuition/ Morgan State University: https://www.morgan.edu/bursar/tuition-and-fees/fall-2025-spring-2026 University of Maryland, College Park:https://academiccatalog.umd.edu/undergraduate/fees-expenses-financial-aid/tuition-fees/ Capitol Technology University: https://www.captechu.edu/node/1596 University of Maryland Eastern Shore: https://wwwcp.umes.edu/fms/tuition-and-fees/					

All Civil Engineering programs lead to a B.S. degree and share a core curriculum that includes mathematics, physics, engineering science, and key civil engineering topics such as structures, geotechnical, transportation, environmental engineering, hydraulics, surveying, and a capstone design project, all aligned with ABET requirements to prepare students for professional practice and licensure. However, they differ in institutional mission and emphasis, ranging from research-intensive universities to smaller teaching-focused or technology-oriented programs. In this context, UMES is a public HBCU serving the Eastern Shore and underrepresented communities, with a Civil Engineering program focused on addressing regional workforce needs and rural infrastructure challenges while maintaining core engineering standards.

Furthermore, the cost of living in Princess Anne, where UMES is located, and the surrounding areas is significantly lower than in Baltimore, College Park, and Laurel. This difference in living expenses positions UMES as one of the most affordable public engineering options in the region. The combination of lower tuition and reduced cost of living can significantly improve access to engineering education for students from underrepresented and economically disadvantaged backgrounds who might otherwise face financial barriers to attending similar programs located on the other side of the Chesapeake Bay Bridge.

While similar programs exist outside of the Delmarva region, the proposed program at the University of Maryland Eastern Shore (UMES) stands out in terms of accessibility. UMES is an HBCU located in Somerset County, one of the most economically disadvantaged counties in Maryland, where approximately 20.3% of residents live below the poverty line, according to the U.S. Census Bureau (https://www.census.gov/quickfacts/fact/table/somersetcountymaryland). As such, UMES plays a critical role in serving underrepresented and underserved populations, including first-generation college students and low-income students.

In contrast to many comparable institutions listed in the table, UMES offers relatively low in-state tuition, making it an affordable option for regional students who may not have the financial means to attend higher-cost institutions in surrounding states or across the Chesapeake Bay. This affordability, combined with its geographic location, significantly expands access to engineering education for students who might otherwise be excluded.

Establishing a Civil Engineering program at UMES will address a critical regional and socioeconomic gap rather than duplicate existing programs, providing local students, particularly those from underrepresented backgrounds, with access to a high-quality, affordable engineering education close to home.

2. Provide justification for the proposed program.

Civil Engineering encompasses the planning, design, construction, and maintenance of infrastructure, including roads, bridges, highways, water systems, dams, and buildings. It integrates technical engineering principles with practical problem-solving to address the region's infrastructure needs.

The proposed Civil Engineering program at UMES will provide students with a solid foundation in core engineering disciplines such as structural analysis, environmental engineering, transportation systems, and water resources, in addition to basic science and mathematical knowledge. This comprehensive curriculum is designed to prepare students with the technical expertise and problem-solving skills required to meet the growing demand for infrastructure development and to address complex engineering challenges in the field.

According to Levelset (n.d.), "the heavy construction industry, currently valued at $176 billion, is projected to reach a market value of $273 billion by 2030." Additionally, CareerExplorer (n.d.) reports that approximately 7,110 civil engineers are currently employed in Maryland. Projections from CareerOneStop also indicate that Maryland will experience approximately 390 annual job openings for civil engineers (https://cloudfront.careeronestop.org/Toolkit/StateAndLocal/ProjectedEmployment.aspx).

By offering this program at the University of Maryland Eastern Shore, the university will provide local students with accessible education and hands-on training needed to become vital contributors to the construction industry.

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 HBI's.

The demand for skilled civil engineers continues to rise due to aging infrastructure, sustainability initiatives such as Maryland's Better Buildings Act of 2024, and ongoing advancements in green building and transportation. Among Maryland's four Historically Black Institutions (HBIs)—Morgan State, Coppin State, Bowie State, and UMES—only Morgan State currently offers a B.S. in Civil Engineering, primarily serving the Baltimore metropolitan region.

The proposed Civil Engineering program at UMES will address a critical gap in access to high-demand STEM education on the Eastern Shore, particularly for underrepresented students. This program will strengthen the role of HBIs in producing engineers equipped with expertise in structural design, environmental engineering, and infrastructure development. It will also foster industry partnerships, ensuring that graduates are equipped with workforce-ready skills.

Rather than duplicating Morgan State's program, the UMES offering will complement it by serving a distinct geographic region. In doing so, the program will enhance the collective impact of Maryland's HBIs in addressing regional and national infrastructure needs while advancing diversity in the engineering profession.

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.**

   According to the Fall 2025 Census Enrollment data, University of Maryland Eastern Shore serves a student population with the following ethnic distribution: Black 64.5%, White 14%, Native American 0.2%, Asian 2.2%, Hispanic 3.2%, International 4.5%, Multi & Non-Hispanic 5.4%, and Unknown 5.9%. (University System of Maryland, 2025, https://www.usmd.edu/IRIS/?view=UMES)

   The mission of UMES and the Department of the Built Environment is to provide educational opportunities for underrepresented minorities and first-generation college students who might not otherwise have a chance to earn a B.S. degree in Civil Engineering. The proposed Civil Engineering degree is designed to meet the accreditation criteria by the Accreditation Board for Engineering and Technology (ABET), ensuring academic rigor and quality.

G. Adequacy of Curriculum Design, Program Modality, and Related Learning Outcomes (as outlined in COMAR13B.02.03.10):

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

Curriculum Design: The proposed Bachelor of Science in Civil Engineering was developed by faculty within the Department of the Built Environment to meet the growing industry demand for skilled professionals in infrastructure development, transportation, water resources, and environmental engineering.

Faculty Oversight: The core courses in the proposed Civil Engineering program will be taught by existing faculty in the Department of the Built Environment. In addition, the UMES Department of Engineering currently offers foundational courses that support several courses in the proposed curriculum. The new Civil Engineering program will be fully supported with the necessary faculty resources to maintain high standards of instruction and program quality. (Please see section I for a list of current faculty members and their backgrounds.)

Program Modality: The program will be offered in person at the University of Maryland Eastern Shore's main campus.

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

The Bachelor of Science in Civil Engineering at the University of Maryland Eastern Shore is designed to prepare graduates for successful careers in Civil Engineering by equipping them with the knowledge and skills needed to address real-world engineering challenges. The program produces graduates who are expected to achieve the following educational objectives within a few years after graduation:

Objective 1: Demonstrate technical competence as civil engineers in industry and government agencies or through the pursuit of advanced studies.

Objective 2: Collaborate effectively on engineering project teams in industry or government settings.

Objective 3: Contribute meaningfully as active and responsible professionals to the Civil Engineering field and its interaction with global society.

Objective 4: Engage in lifelong learning by continuously updating skills and knowledge to stay current with emerging tools, technologies, and best practices in Civil Engineering.

Consistency of the
Program Educational Objectives with the Institutional Mission

Program Educational Objectives	**Institutional Mission Statement:** As a public 1890 land-grant Historically Black University that embraces diversity, UMES is committed to serving first-generation and underserved students and providing educational, research, and community engagement opportunities to transform the lives of its students who will impact the state, region, and the world.
Objective 1: Demonstrate technical competence as civil engineers in industry and government agencies or through the pursuit of advanced studies.	UMES empowers first-generation and underserved students with the technical skills to excel in their careers and further studies.
Objective 2: Collaborate effectively on engineering project teams in industry or government settings.	UMES fosters diversity and teamwork, preparing students to work well in diverse professional environments.
Objective 3: Contribute meaningfully as active and responsible professionals to the Civil Engineering field and its interaction with global society.	UMES transforms students into responsible professionals who make positive impacts locally and globally.
Objective 4: Engage in lifelong learning by continuously updating skills and knowledge to stay current with emerging tools, technologies, and best practices in Civil Engineering.	UMES provides research and learning opportunities to ensure students stay current with evolving technologies in the field.

Students' Learning Outcomes:

Graduates of the Bachelor of Science in Civil Engineering program will demonstrate the following learning outcomes:

1. An ability **to identify, formulate, and solve** complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to **apply engineering design** to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to **communicate effectively** with a range of audiences.
4. An ability to **recognize ethical and professional responsibilities** in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to **function effectively on a team** whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

6. An ability to **develop and conduct appropriate experimentation**, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to **acquire and apply new knowledge** as needed, using appropriate learning strategies.

Relationship of Student Outcomes to Program Educational Objectives

Student Learning Outcomes	**Program Educational Objectives**			
	Objective 1: Demonstrate technical competence as civil engineers in industry and government agencies or through the pursuit of advanced studies.	**Objective 2:** Collaborate effectively on engineering project teams in industry or government settings.	**Objective 3:** Contribute as active and responsible professionals to the Civil Engineering field and its interaction with global society.	**Objective 4:** Continuously updating skills and knowledge to stay current with advancing Civil Engineering tools and technologies.
1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.	✓			
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.	✓		✓	
3. An ability to communicate effectively with a range of audiences.		✓		
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.			✓	
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.		✓		
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.	✓			
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	✓	✓		✓

Rubrics aligned with the learning outcomes will be developed and implemented by faculty to assess each student's progress throughout the program. These outcomes will be used to evaluate the overall success of the Civil Engineering program.

3. Explain how the institution will:

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

Assessment methods based on established departmental standards will include the following:

- **Assessing written student reports** and oral presentations, as well as individual, team, and/or senior design projects.
- **Evaluating student performance** through assignments, quizzes, and exams in required major courses.
- **Administering surveys** to students, alumni, and industry partners to gather feedback on the program's effectiveness and its alignment with current industry needs and expectations.

b) Document student achievement of learning outcomes in the program.

The department will document student achievement of learning outcomes in the Civil Engineering program in the same fashion as its currently accredited Construction Management Technology program. For instance, in that program, based on American Council for Construction Education (ACCE) requirements, student work, project evaluations, surveys, and feedback from Industrial Advisory Board (IAB) are used to assess and document the achievement of these outcomes. Assessment of learning outcomes for the newly proposed program will be conducted every six years per ABET accreditation requirements, once accredited.

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

The Bachelor of Science in Civil Engineering program requires the successful completion of 120 credit hours. The curriculum includes 39 credit hours of general education courses in English, arts and humanities, social and behavioral sciences, and discipline-specific courses. Students will complete 59 credit hours of core Civil Engineering courses (56 required and 3 electives). Additionally, the program includes 22 credit hours of supportive courses in mathematics, science, business, and computer science, which are integrated into the requirements for the Civil Engineering major. A complete list of courses, including titles, semester credit hours, and descriptions, is provided below:

Bachelor of Science in Civil Engineering

Category		Distribution
I.	General Education Courses	39 credit hours
II.	Supportive Math/Science/Business/Computer Courses	22 credit hours
III.	Core Required Courses	56 credit hours
IV.	Core Elective Courses	3 credit hours
		120 credit hours

Curriculum of Bachelor of Science in Civil Engineering

General Education		**39 credits needed**
Course Code	**Course Title**	**Credit Hours**
GEP Area 1: Arts and Humanities		**6 credit hours**
ARTS 101, ARTS 310, ARAB 101, ASLS 203, CHIN 101, ENGL 204, ENGL 205, ENGL 206, ENGL 207, FREN 101, HIND 101, HONR 101, JAPN 101, KORE 101, PORT 101, SPAN 101, THAR 101	Elective Arts and Humanities [NP]	3 hrs
ENGL 203	Fundamentals of Contemporary Speech [PR: ENGL 101, ENGL 102]	3 hrs
GEP Area 2: Social and Behavioral Sciences		**6 credit hours**
ECON 201	Principles of Economics (Macro) [PR: MATH 102 or Higher]	3 hrs
CRJS 101, ECON 202, GEOG 201, GEOG 202, HIST 101, HIST 102, HIST 201, HIST 202, HONR 201, HUEC 203, HUEC 220, HUEC 361, PHIL 201, PHIL 202, POLI 200, POLI 220, POLI 342, PSYC 100, SOCI 101, SOCI 201	Elective Social and Behavioral Sciences [PR: As specified by the selected course]	3 hrs
GEP Area 3: Biological and Physical Sciences		**7 credit hours**
ENVS 101	Introduction to Environmental Sciences [NP]	3 hrs
PHYS 161	General College Physics I [PR: MATH 112/CR: PHYS 163]	3 hrs
PHYS 163	General College Physics I Laboratory [CR: PHYS 161]	1 hr
GEP Area 4: Math		**4 credit hours**
MATH 112	Calculus I [PR: MATH 110]	4 hrs

GEP Area 5: English Composition		**9 credit hours**
ENGL 101	Principles of Composition I [NP]	3 hrs
ENGL 102	Principles of Composition II [PR: ENGL 101]	3 hrs
ENGL 305, ENGL 310	Technical Writing [PR: ENGL 101, ENGL 102, ENGL 203], or Advanced Composition [PR: ENGL 101, ENGL 102]	3 hrs
GEP Area 6: Institution-Specific Courses		**7 credit hours**
ENGE 100	First-Year Orientations with Engineering [NP]	1 hr
BUAD 213, BUED 212, ETGE 110, ETGE 111, ETGE 112	Computer Literacy [NP]	3 hrs
BUAD 311, CRJS 455, DMST 440, ENGL 348, ENGL 359, EXSC 111, EXSC 265, EXSC 382, HUEC 230, HUEC 463	JEDI (Justice, Equity, Diversity, Inclusion): UMES Signature Course [PR: ENGL 102]	3 hrs

Supportive Math/Science/Business/Computer Courses		**22 credits needed**
Course Code	**Course Title**	**Credit Hours**
CHEM 111	Principles of Chemistry I [CR: CHEM 113]	3 hrs
CHEM 113	Principles of Chemistry I Laboratory [CR: CHEM 111]	1 hr
CSDP 120	Introduction to Computer Programming [PR: MATH 110]	3 hrs
MATH 211	Calculus II [PR: MATH 112]	4 hrs
MATH 212	Calculus III [PR: MATH 211]	4 hrs
MATH 241	Differential Equations [PR: MATH 211]	3 hrs
PHYS 262	General College Physics II [PR: PHYS 161, PHYS 163/CR: PHYS 264]	3 hrs
PHYS 264	General College Physics II Laboratory [CR: PHYS 262]	1 hr

Core Required Courses		**56 credits needed**
Course Code	**Course Title**	**Credit Hours**
CENG 201	Engineering Graphics [NP]	3 hrs
CENG 214	Surveying and Geomatics [PR: CENG 201, MATH 112]	3 hrs
CENG 230	Construction Materials [PR: CHEM 111, PHYS 161]	3 hrs
CENG 310	Structural Analysis [PR: ENGE 362, MATH 241]	3 hrs
CENG 320	Introduction to Environmental Engineering [PR: CHEM 111, ENVS 101]	3 hrs
CENG 325	Construction Methods and Equipment [PR: CENG 201, CENG 230, PHYS 262]	3 hrs
CENG 330	Introduction to Transportation Engineering [PR: CENG 214, ENGE 320, PHYS 161]	3 hrs

CENG 350	Fluid Mechanics and Hydraulics [PR: MATH 241, PHYS 161]	3 hrs
CENG 363	Properties and Mechanics of Materials Lab [PR: CENG 230/CR: ENGE 362]	1 hr
CENG 395	Internship [PR: Junior Standing, Permission of Instructor]	1 hr
CENG 410	Structural Steel Design [PR: CENG 310]	3 hrs
CENG 412	Reinforced Concrete Design [PR: CENG 310]	3 hrs
CENG 415	Hydrology and Drainage [PR: CENG 350]	3 hrs
CENG 427	Soil Mechanics and Foundation Engineering [PR: CHEM 111, CENG 230, ENGE 362]	3 hrs
CENG 459	Civil Engineering Design Project [PR: Senior Standing, CENG 427, CENG 410]	3 hrs
ENGE 260*	Statics [PR: MATH 112]	3 hrs
ENGE 261*	Dynamics [PR: ENGE 260, MATH 211]	3 hrs
ENGE 320*	Statistics and Probability for Engineers [PR: MATH 211]	3 hrs
ENGE 362*	Mechanics of Materials [PR: ENGE 260, MATH 211]	3 hrs
ENME 345*	Thermodynamics [PR: ENGE 261]	3 hrs

Core Elective Courses		**3 credits needed**
Course Code	**Course Title**	**Credit Hours**
CENG 305	Engineering Economy [PR: ECON 201, ENGE 320]	3 hrs
CENG 326	Mechanical and Electrical Building Systems [PR: CENG 201, MATH 112, PHYS 262]	3 hrs
CENG 360	Introduction to Wind Energy and Turbine Technology [PR: MATH 212, PHYS 262]	3 hrs
CENG 386	Construction Planning and Scheduling [PR: CENG 230, ENGE 320]	3 hrs
CENG 416	Water and Wastewater Treatment [PR: CHEM 111]	3 hrs
CENG 430	Highway Engineering [PR: CENG 310, CENG 330]	3 hrs
CENG 445	Construction Cost Estimating and Control [PR: Senior Standing, CENG 201, CENG 230]	3 hrs
CENG 450	Sustainable Design and Construction [PR: Senior Standing, CENG 230]	3 hrs
CENG 499	Undergraduate Research Project [PR: Senior Standing, Permission of Instructor, Approval of Department Chair]	1-6 hrs
ENGE 370*	Computational Methods in Engineering [PR: MATH 211/CR: MATH 241]	3 hrs

Abbreviations: **NP**- No Prerequisites, **PR**- Prerequisite, **CR**- Corequisite

Note: *The following six (6) courses are cross-listed in the existing engineering programs: ENGE 260, ENGE 261, ENGE 320, ENGE 362, ENME 345, and ENGE 370. This cross-listing enables current faculty to contribute to course delivery for the proposed Civil Engineering program.

Based on the ABET accreditation guidelines and outlined in the table below, the curriculum includes 30 credit hours of mathematics and basic sciences, 59 credit hours of engineering topics, 22 credit hours of general education, and 9 credit hours of business and computer courses.

ABET Curriculum Breakdown by Credit Hours

General Education		**39 credits needed**	**Math & Basic Sciences**	**Engineering Topics**	**General**	**Other**
Course Code	**Course Title**	**Credit Hours**				
GEP Area 1: Arts and Humanities		**6 credit hours**				
ARTS 101, ARTS 310, ARAB 101, ASLS 203, CHIN 101, ENGL 204, ENGL 205, ENGL 206, ENGL 207, FREN 101, HIND 101, HONR 101, JAPN 101, KORE 101, PORT 101, SPAN 101, THAR 101	Elective Arts and Humanities	3			✓	
ENGL 203	Fundamentals of Contemporary Speech	3			✓	
GEP Area 2: Social and Behavioral Sciences		**6 credit hours**				
ECON 201	Principles of Economics (Macro)	3				✓
CRJS 101, ECON 202, GEOG 201, GEOG 202, HIST 101, HIST 102, HIST 201, HIST 202, HONR 201, HUEC 203, HUEC 220, HUEC 361, PHIL 201, PHIL 202, POLI 200, POLI 220, POLI 342, PSYC 100, SOCI 101, SOCI 201	Elective Social and Behavioral Sciences	3			✓	
GEP Area 3: Biological and Physical Sciences		**7 credit hours**				
ENVS 101	Introduction to Environmental Sciences	3	✓			
PHYS 161	General College Physics I	3	✓			
PHYS 163	General College Physics I Laboratory	1	✓			
GEP Area 4: Math		**4 credit hours**				
MATH 112	Calculus I	4	✓			
GEP Area 5: English Composition		**9 credit hours**				

ENGL 101	Principles of Composition I	3			✓	
ENGL 102	Principles of Composition II	3			✓	
ENGL 305, ENGL 310	Technical Writing, or Advanced Composition	3			✓	
GEP Area 6: Institution-Specific Courses		**7 credit hours**				
ENGE 100	First-Year Orientations with Engineering	1			✓	
BUAD 213, BUED 212, ETGE 110, ETGE 111, ETGE 112	Computer Literacy	3				✓
BUAD 311, CRJS 455, DMST 440, ENGL 348, ENGL 359, EXSC 111, EXSC 265, EXSC 382, HUEC 230, HUEC 463	JEDI (Justice, Equity, Diversity, Inclusion): UMES Signature Course	3			✓	
Supportive Math/Science/Business/Computer Courses		**22 credits needed**				
Course Code	**Course Title**	**Credit Hours**				
CHEM 111	Principles of Chemistry I	3	✓			
CHEM 113	Principles of Chemistry I Laboratory	1	✓			
CSDP 120	Introduction to Computer Programming	3				✓
MATH 211	Calculus II	4	✓			
MATH 212	Calculus III	4	✓			
MATH 241	Differential Equations	3	✓			
PHYS 262	General College Physics II	3	✓			
PHYS 264	General College Physics II Laboratory	1	✓			
Core Required Courses		**56 credits needed**				
Course Code	**Course Title**	**Credit Hours**				
CENG 201	Engineering Graphics	3		✓		
CENG 214	Surveying and Geomatics	3		✓		
CENG 230	Construction Materials	3		✓		
CENG 310	Structural Analysis	3		✓		
CENG 320	Introduction to Environmental Engineering	3		✓		
CENG 325	Construction Methods and Equipment	3		✓		
CENG 330	Introduction to Transportation Engineering	3		✓		
CENG 350	Fluid Mechanics and Hydraulics	3		✓		
CENG 363	Properties and Mechanics of Materials Lab	1		✓		
CENG 395	Internship	1		✓		
CENG 410	Structural Steel Design	3		✓		
CENG 412	Reinforced Concrete Design	3		✓		

CENG 415	Hydrology and Drainage	3		✓		
CENG 427	Soil Mechanics and Foundation Engineering	3		✓		
CENG 459	Civil Engineering Design Project	3		✓		
ENGE 260	Statics	3		✓		
ENGE 261	Dynamics	3		✓		
ENGE 320	Statistics and Probability for Engineers	3		✓		
ENGE 362	Mechanics of Materials	3		✓		
ENME 345	Thermodynamics	3		✓		
Core Elective Courses		**3 credits**		✓		
Course Code	**Course Title**	**Credit Hours**				
CENG 305	Engineering Economy	3				
CENG 326	Mechanical and Electrical Building Systems	3				
CENG 360	Introduction to Wind Energy and Turbine Technology	3				
CENG 386	Construction Planning and Scheduling	3				
CENG 416	Water and Wastewater Treatment	3				
CENG 430	Highway Engineering	3				
CENG 445	Construction Cost Estimating and Control	3				
CENG 450	Sustainable Design and Construction	3				
CENG 499	Undergraduate Research Project	1-6				
ENGE 370	Computational Methods in Engineering	3				
	TOTAL	**120**	**30**	**59***	**22**	**9**

Note: *The 59 total credits include choosing one of the 3-hour core elective courses included at the end of the chart above.

Semester-by-Semester Plan Outline

Total credits: 120 credits

Freshman Year: 32 credits

Fall: 15 credits

- GEP Elective Arts and Humanities (3 Credits)
- CHEM 111 Principles of Chemistry I (3 Credits)
- CHEM 113 Principles of Chemistry I Laboratory (1 Credit)
- ENGE 100 First-Year Orientations with Engineering (1 Credit)
- ENGL 101 Principles of Composition I (3 Credits)
- MATH 112 Calculus I (4 Credits)

Spring: 17 credits

- CSDP 120 Introduction to Computer Programming (3 Credits)
- ENGL 102 Principles of Composition II (3 Credits)
- ENVS 101 Introduction to Environmental Sciences (3 Credits)
- MATH 211 Calculus II (4 Credits)
- PHYS 161 General College Physics I (3 Credits)
- PHYS 163 General College Physics I Laboratory (1 Credit)

Sophomore Year: 32 credits

Fall: 17 credits

- CENG 201 Engineering Graphics (3 Credits)
- ECON 201 Principles of Economics (Macro) (3 Credits)
- ENGE 260 Statics (3 Credits)
- MATH 212 Calculus III (4 Credits)
- PHYS 262 General College Physics II (3 Credits)
- PHYS 264 General College Physics II Laboratory (1 Credit)

Spring: 15 credits

- CENG 214 Surveying and Geomatics (3 Credits)
- CENG 230 Construction Materials (3 Credits)
- ENGE 261 Dynamics (3 Credits)
- ENGL 203 Fundamentals of Contemporary Speech (3 Credits)
- MATH 241 Differential Equations (3 Credits)

Junior Year: 32 credits

Fall: 16 credits

- GEP Computer Literacy (3 Credits)
- CENG 325 Construction Methods and Equipment (3 Credits)
- CENG 363 Properties and Mechanics of Materials Lab (1 Credit)
- ENGE 320 Statistics and Probability for Engineers (3 Credits)
- ENGE 362 Mechanics of Materials (3 Credits)
- ENME 345 Thermodynamics (3 Credits)

Spring: 15 credits

- GEP JEDI (Justice, Equity, Diversity, Inclusion) (3 Credits)
- CENG 310 Structural Analysis (3 Credits)
- CENG 320 Introduction to Environmental Engineering (3 Credits)
- CENG 330 Introduction to Transportation Engineering (3 Credits)
- CENG 350 Fluid Mechanics and Hydraulics (3 Credits)

Summer: 1 credit

- CENG 395 Internship (1 Credit)

<u>Senior Year: 24 credits</u>

Fall: 12 credits

- CENG 410 Structural Steel Design (3 Credits)
- CENG 415 Hydrology and Drainage (3 Credits)
- CENG 427 Soil Mechanics and Foundation Engineering (3 Credits)
- ENGL 305/310 Technical Writing or Advanced Composition (3 Credits)

Spring: 12 credits

- CENG 412 Reinforced Concrete Design (3 Credits)
- CENG 459 Civil Engineering Design Project (3 Credits)
- GEP Elective Social and Behavioral Sciences (3 Credits)
- ELECT Core Elective Course (3 Credits)

CIVIL ENGINEERING CORE AND ELECTIVE COURSE DESCRIPTIONS – Bachelor of Science Degree

CENG 201 Engineering Graphics: 3 credits (2 Lecture hours, 2 Lab hours). This course focuses on the principles of engineering graphics and their application in technical design and communication. Topics include orthographic projection, isometric drawings, computer-aided drafting (CAD) techniques, and the interpretation of technical drawings and blueprints. Students will gain proficiency in geometric construction, sectional and auxiliary views, and proper dimensioning techniques, with an emphasis on industry standards and best practices. The course also covers the use of CAD libraries containing pre-drawn components to enhance drafting efficiency. By the end of the course, students will be able to communicate design concepts effectively through professional engineering drawings. [No prerequisites needed.]

CENG 214 Surveying and Geomatics: 3 credits (1 Lecture hour, 4 Lab hours). This course introduces the fundamental principles and practices of surveying and geomatics. Topics include distance and angle measurement, leveling, topographic mapping, traverse and area computations, horizontal and vertical curves, cross sections, triangulation, state plane coordinates, and global positioning systems (GPS). Students will learn data collection, analysis, and mapping techniques, including creating topographic maps and layout plans. The course emphasizes the use of computer applications for solving typical field and class problems. A concurrent lab provides hands-on experience with surveying techniques and equipment. [Prerequisites: CENG 201: Engineering Graphics, MATH 112: Calculus I]

CENG 230 Construction Materials: 3 credits (2 Lecture hours, 2 Lab hours). This course covers the fundamental concepts of materials science, focusing on the structure and properties of materials and their relationship to material selection and design. Topics include the classification and mechanical properties of construction materials such as soils, aggregates, cement, concrete, metals, wood, asphalt, composites, and new materials. Students will learn mix-design procedures for Portland cement concrete and bituminous/asphalt mixtures, as well as quality control and assurance practices in construction materials. The course also focuses on testing material properties and evaluating performance following established industry standards. [Prerequisites: CHEM 111: Principles of Chemistry I, PHYS 161: General College Physics I]

CENG 305 Engineering Economy: 3 credits (3 Lecture hours, 0 Lab hours). This course introduces the principles of economic analysis as applied to engineering decision-making. Topics include the time value of money, interest rates, present and future value calculations, cost-benefit analysis, break-even analysis, and the economic evaluation of alternative projects. Students will learn how to apply economic concepts to civil and construction engineering problems, including project budgeting, investment decisions, and financial planning. The course also covers inflation, depreciation, tax considerations, and risk analysis in project evaluation. Monte Carlo simulation techniques are employed throughout the course to study variability in engineering designs and assess their economic impact. Emphasis is placed on developing the skills necessary to make informed, cost-effective

decisions in engineering practice. [Prerequisites: ECON 201: Principles of Economics (Macro), ENGE 320: Statistics and Probability for Engineers]

CENG 310 Structural Analysis: 3 credits (3 Lecture hours, 0 Lab hours). This course provides a study of the principles and methods used to analyze the behavior of structures under various loads. Topics include static equilibrium, internal forces, shear and bending moment diagrams, axial loads, torsion, and analysis of determinate trusses, frames, and beams. The calculation of deflections and the effects of moving loads are covered, as well as approximate methods to analyze indeterminate beams and frames. [Prerequisites: ENGE 362: Mechanics of Materials, MATH 241: Differential Equations]

CENG 320 Introduction to Environmental Engineering: 3 credits (3 Lecture hours, 0 Lab hours). This course covers the principles and practices of environmental engineering, including mass balance, rainfall and runoff analysis, surface water and groundwater hydrology, water and wastewater treatment, air pollution control, solid and hazardous waste management, and environmental impact assessment. The role of the U.S. Environmental Protection Agency (EPA) in environmental protection is examined. Topics also include sustainable technologies, regulatory frameworks, and the role of engineers in addressing environmental challenges. Emphasis is placed on applying engineering principles to solve environmental problems and improve public health and safety. [Prerequisites: CHEM 111: Principles of Chemistry I, ENVS 101: Introduction to Environmental Sciences]

CENG 325 Construction Methods and Equipment: 3 credits (3 Lecture hours, 0 Lab hours). This course covers the methods and equipment used in construction projects. Topics include excavation, material handling, lifting operations, formwork, and machinery for grading, trenching, and road construction. Emphasis is placed on the selection, application, and production of appropriate equipment for various construction tasks, with a focus on sustainability, as well as the economic and environmental considerations in equipment selection and operation. Students will also explore construction methods for foundations, superstructures, and infrastructure. [Prerequisites: CENG 201: Engineering Graphics, CENG 230: Construction Materials, PHYS 262: General College Physics II]

CENG 326 Mechanical and Electrical Building Systems: 3 credits (3 Lecture hours, 0 Lab hours). This course examines building mechanical and electrical systems from the construction manager's point of view. The course will review how the basic design calculations are performed to determine how building systems are selected and designed, review design documents including drawings and specifications, how the subcontractor bid packages are determined, purchasing of subcontracts, review of the shop drawing process, review of the mechanical systems shop drawing coordination process, construction of systems, turn-on and energization, start-up, testing, systems balancing, commissioning of systems, final turn-over, training demonstration to the owner, and close-out operations. [Prerequisites: CENG 201: Engineering Graphics, MATH 112: Calculus I, PHYS 262: General College Physics II]

CENG 330 Introduction to Transportation Engineering: 3 credits (3 Lecture hours, 0 Lab hours). This course introduces the fundamental principles of transportation

engineering, including transportation systems planning, design, operation, and management. Topics include traffic flow theory, transportation safety, and an overview of different modes of transportation. Students will also learn about transportation demand forecasting, capacity analysis, and the environmental and economic impacts of transportation projects. [Prerequisites: CENG 214: Surveying and Geomatics, ENGE 320: Statistics and Probability for Engineers, PHYS 161: General College Physics I]

CENG 350 Fluid Mechanics and Hydraulics: 3 credits (2 Lecture hours, 2 Lab hours). This course introduces the fundamental principles of fluid mechanics and their practical applications, applicable to civil and construction engineering disciplines. Topics include the properties of fluids, fluid statics and dynamics, flow measurement, Bernoulli's equation, and the analysis of open channel and pipe flow. Students will learn about flow rate, pressure, velocity, energy losses, and fluid resistance in various systems. The course also covers hydraulic systems, pumps, and valves, as well as their applications in water distribution, stormwater management, and wastewater systems. Emphasis is placed on practical applications and the design of fluid systems in construction projects. The laboratory component provides hands-on experience in fluid property measurements, flow visualization, and hydraulic experiments. [Prerequisites: MATH 241: Differential Equations, PHYS 161: General College Physics I]

CENG 360 Introduction to Wind Energy and Turbine Technology: 3 credits (3 Lecture hours, 0 Lab hours). This course introduces students to the fundamentals of wind turbine mechanical systems, including wind energy potential and application to power generation. Topics include wind energy principles, wind site assessment, wind turbine components, power generation machinery, control systems, connection to the electric grid, and maintenance. The course will reinforce theoretical topics through relevant case studies and practical examples. [Prerequisites: MATH 212: Calculus III, PHYS 262: General College Physics II]

CENG 363 Properties and Mechanics of Materials Lab: 1 credit (0 Lecture hours, 2 Lab hours). This laboratory course provides practical experience in testing and analyzing the mechanical and physical properties of engineering materials. Experiments include tensile, compression, hardness, and impact testing, as well as microstructure examination and fracture analysis. Students will learn to apply fundamental concepts of material behavior, use modern testing equipment, analyze experimental data, and prepare technical reports. [Prerequisites: CENG 230: Construction Materials/CR: ENGE 362: Mechanics of Materials]

CENG 386 Construction Planning and Scheduling: 3 credits (3 Lecture hours, 0 Lab hours). This course covers the application of a variety of construction planning and scheduling methods. They include arrow and precedence networks using the Critical Path Method (CPM), Gantt charts and S-curves, resource allocation and resource leveling, time-cost tradeoffs, scheduling updating, C/SCSC and earned value systems, linear scheduling, and PERT and computer scheduling software applications. [Prerequisites: CENG 230: Construction Materials, ENGE 320: Statistics and Probability for Engineers]

CENG 395 Internship: 1 credit (120 Work hours). This course provides students with practical work experience with an approved employer in the civil or construction engineering field. A minimum of 120 documented contact hours with the selected employer is required. The course allows students to apply classroom knowledge in real-world engineering and construction settings, gaining hands-on experience and exposure to industry practices. [Prerequisites: Junior Standing, Permission of Instructor]

CENG 410 Structural Steel Design: 3 credits (3 Lecture hours, 0 Lab hours). This course covers the properties of structural steel, followed by the design of structural elements in steel buildings. Topics include the design of tension members, compression members, beams, beam-columns, and connections using the AISC (American Institute of Steel Construction) Load and Resistance Factor Design (LRFD) specifications. The course also covers construction techniques, along with the economic and safety considerations involved in the design and construction of steel structures. [Prerequisites: CENG 310: Structural Analysis].

CENG 412 Reinforced Concrete Design: 3 credits (3 Lecture hours, 0 Lab hours). This course covers the properties of concrete materials and reinforcing steel, as well as design approaches and structural loading. It introduces ACI (American Concrete Institute) Building Code requirements for reinforced concrete design. Topics include the design of beams, slabs, columns, and footings using ultimate strength design principles. The course also addresses serviceability considerations such as short- and long-term deflections, crack control, as well as bond, development lengths, and splices. [Prerequisites: CENG 310: Structural Analysis]

CENG 415 Hydrology and Drainage: 3 credits (3 Lecture hours, 0 Lab hours). This course covers the principles of hydrology and their application in designing drainage systems. Topics include precipitation, runoff, watershed analysis, stormwater management, and flood control. Students will also explore hydrological models and the environmental and regulatory considerations in drainage system design. [Prerequisites: CENG 350: Fluid Mechanics and Hydraulics]

CENG 416 Water and Wastewater Treatment: 3 credits (3 Lecture hours, 0 Lab hours). This course covers the fundamental principles and processes involved in water and wastewater treatment. Topics include water quality parameters, physical, chemical, and biological treatment methods, water purification, disinfection, sludge treatment, and emerging technologies in water and wastewater management. Students will also learn about regulatory standards, environmental considerations, and sustainability practices in treatment facility design and operation. [Prerequisites: CHEM 111: Principles of Chemistry I]

CENG 427 Soil Mechanics and Foundation Engineering: 3 credits (2 Lecture hours, 2 Lab hours). This course covers the principles of soil mechanics and their application in foundation engineering. Topics include the mechanical and physical properties of soils, classification, and behavior under different loading conditions. The course explores soil exploration techniques, compaction, consolidation, settlement, permeability, and shear strength tests. It also addresses bearing capacity, stress distribution, and lateral earth

pressure, as well as the analysis and design of shallow and deep foundations and earth-retaining structures. The laboratory component includes hands-on testing and analysis of soil properties to reinforce the theoretical concepts covered in the course. [Prerequisites: CHEM 111: Principles of Chemistry I, CENG 230: Construction Materials, ENGE 362: Mechanics of Materials]

CENG 430 Highway Engineering: 3 credits (3 Lecture hours, 0 Lab hours). This course focuses on the design, construction, and maintenance of highway systems. Topics include geometric design, materials selection, pavement design, traffic analysis, intersection design, drainage systems, earthwork, and highway maintenance. Students will apply engineering principles to evaluate and design various components of highways, considering factors such as safety, efficiency, and environmental impact. [Prerequisites: CENG 310: Structural Analysis, CENG 330: Introduction to Transportation Engineering]

CENG 445 Construction Cost Estimating and Control: 3 credits (3 Lecture hours, 0 Lab hours). This course covers the creation of construction project cost estimates and bid proposals for both public and private sector projects. Topics include professional ethics, types of project cost estimates and their uses, life cycle costing, and the analysis and determination of materials, labor, and equipment costs. The course also addresses subcontracting, direct and indirect overhead costs, and profits. Additionally, students will explore the use of spreadsheets and cost-estimating software applications to enhance accuracy and efficiency in cost estimation and control. [Prerequisites: CENG 201: Engineering Graphics, CENG 230: Construction Materials]

CENG 450 Sustainable Design and Construction: 3 credits (3 Lecture hours, 0 Lab hours). This course is the study of sustainable construction techniques and best practices. It provides an understanding of the independence between planning, designing, building, operating, and demolishing the built environment and their impacts on the natural environment. Course topics will include: 1) issues of resource efficiency, economics, ethics, waste, human health, environmental justice, and industrial ecology; 2) alternative practices that significantly reduce adverse environmental impacts of built infrastructure; and 3) exploration of past and present thinking of engineering practitioners in this newly emerging discipline. [Prerequisites: Senior Standing, CENG 230: Construction Materials]

CENG 459 Civil Engineering Design Project: 3 credits (1 Lecture hour, 2 credits Project work). This capstone course involves the development and completion of a comprehensive design project that integrates the knowledge and skills acquired throughout the civil engineering program. Students will work in teams to identify, analyze, and develop solutions to complex civil engineering problems. The project involves detailed design, analysis, and the preparation of technical reports and presentations. Emphasis will be placed on integrating knowledge from various civil engineering disciplines, including structural, environmental, and geotechnical engineering, as well as on professional ethics, communication skills, and teamwork. The course culminates in a final presentation to students and faculty. [Prerequisites: Senior Standing, CENG 427: Soil Mechanics and Foundation Engineering, CENG 410: Structural Steel Design]

CENG 499 Undergraduate Research Project: 1-6 credits (Research). This course is designed for junior or senior undergraduate students who have an interest in pursuing a special problem as an independent research project. An Independent Study Contract must be prepared and submitted for approval by the Department Chair within the first week of the semester. Students cannot take more than two CENG 499 courses for a combined total of 6 credits. This course requires the consent of the instructor and the approval of the Department Chairperson. [Prerequisites: Senior Standing, Permission of Instructor, Approval of Department Chair]

ENGE 260* Statics: 3 credits (3 Lecture hours, 0 Lab hours). Addition, subtraction, and multiplication of force and moment vectors; equilibrium of particles, planar, and 3-dimensional rigid bodies under the action of forces and moments; applications of equilibrium principles to simple trusses, frames, and machines; center of mass and centroids; moments of inertia; internal forces and moments; shear force and bending moment diagrams. [Prerequisite: MATH 112: Calculus I]

ENGE 261* Dynamics: 3 credits (3 Lecture hours, 0 Lab hours). Kinematics and kinetics of particles and rigid bodies; relative motion, force acceleration, work energy, and impulse-momentum relationships in Cartesian, normal tangential, polar, spherical, and cylindrical coordinate systems; introduction to design analysis involving dynamics principles. [Prerequisites: ENGE 260: Statics, MATH 211: Calculus II]

ENGE 320* Statistics and Probability for Engineers: 3 credits (3 Lecture hours, 0 Lab hours). Probability; random variables and processes; discrete and continuous distributions and densities; collection and presentation of sample data; frequency distributions and histograms; confidence intervals; hypothesis testing; basic problems of statistical inference; linear regression and correlation; designing engineering experiments. [Prerequisite: MATH 211: Calculus II]

ENGE 362* Mechanics of Materials: 3 credits (3 Lecture hours, 0 Lab hours). Introduction to stress, strain, materials properties, and Hooke's law; distortion of engineering materials in relation to changes in stress or temperature; torsion of circular rods and tubes; bending and shear stresses in beams; deflection of beams; thin wall pressure vessels; combined loading; stress and strain transformation; buckling of columns; engineering applications. [Prerequisites: ENGE 260: Statics, MATH 211: Calculus II]

ENGE 370* Computational Methods in Engineering: 3 credits (3 Lecture hours, 0 Lab hours). Fundamentals of linear algebra and basic operations of vectors and matrices; error analysis; solution of a system of linear equations; iterative solution of nonlinear equations; numerical integration; numerical solution of differential equations; introduction to Matlab software; programming and applications relating to the computational functions in Matlab. [Prerequisites: MATH 211: Calculus II/CR: MATH 241: Differential Equations]

ENME 345* Thermodynamics: 3 credits (3 Lecture hours, 0 Lab hours). Work and heat transfer; the study of the classical thermodynamics approach to closed systems and control volumes; properties and processes of gases and vapors; zeroth, first, and second laws of

thermodynamics for closed systems and control volumes; entropy; thermodynamic power and refrigeration/heat pump cycles. [Prerequisite: ENGE 261: Dynamics]

Note: [*] Existing Courses

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

   Students in the Civil Engineering program will take a total of 39 credit hours of General Education courses at the undergraduate level. This includes courses in Arts and Humanities (6 credits), Social and Behavioral Sciences (6 credits), Biological and Physical Sciences (7 credits), Math (4 credits), English Composition (9 credits), and Institution-Specific Courses (7 credits). Additionally, 22 credit hours are required in supportive Math, Science, Business, and Computer courses to provide a well-rounded foundation for the major.

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

   The proposed Bachelor of Science in Civil Engineering degree will be designed to meet the general accreditation criteria set by the Accreditation Board for Engineering and Technology (ABET). Additionally, the program will align with the guidelines and expectations of the American Society of Civil Engineers (ASCE) to ensure that graduates meet industry standards and professional competencies. According to the ABET official website, "ABET accreditation assures confidence that a collegiate program has met standards essential to prepare graduates to enter critical STEM fields in the global workforce. Graduates from an ABET-accredited program have a solid educational foundation and can lead the way in innovation, emerging technologies, and in anticipating the welfare and safety needs of the public." (ABET. (n.d.). Why ABET accreditation matters. Retrieved March 2026, from https://www.abet.org/accreditation/what-is-accreditation/why-abet-accreditation-matters/).

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

   There will be no contracts with other institutions or non-collegiate organizations.

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 full curriculum and course-specific information for the proposed degree program will be made available on the Department of the Built Environment website: www.umes.edu/tech. Additional information regarding academic and student support services, financial aid resources, and tuition payment policies can be accessed through the websites of the UMES Office of Admissions and Recruitment and the Office of Student Financial Aid. Students are introduced to these resources during the university's onboarding and orientation for new students, where they receive guidance on accessing academic information and campus support services. This ensures that students have clear and convenient access to essential information throughout their academic journey.

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 proposed Civil Engineering program will be advertised alongside other academic programs within the School of Business, Engineering, Applied Sciences, Technology, and Tourism Management at UMES. Advertising and recruiting efforts will be made through multiple platforms, including social media such as the UMES Facebook page, the University newsletter "*The Key,"* the UMES Alumni Association, professional societies, and Public Radio WESM 91.3. Advertising will also be done in collaboration with the Maryland Center for Construction Education. Additionally, printed brochures and flyers will also be developed and distributed.

H. Adequacy of Articulation (as outlined in COMAR 13B.02.03.19)

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

UMES currently maintains articulation agreements with several community colleges and high schools throughout the state to support undergraduate degree pathways. For example, the existing Construction Management Technology program in the Department of the Built Environment has articulation agreements in place with Wor-Wic Community College, Frederick Community College, Montgomery College, and Northern Virginia Community College.

Recently, UMES established a provisional articulation agreement with Wor-Wic Community College, Salisbury, MD for the STEM Transfer, Engineering Concentration (A.S.), providing a pathway to the proposed Bachelor of Science in Civil Engineering program.

The goal of the proposed program is to strengthen existing partnerships with community colleges and high schools while developing new articulation agreements. Furthermore, the department will collaborate with the Maryland State Department of Education to establish articulation agreements with K–12 schools, creating a comprehensive educational pipeline that supports students' progression from secondary education through degree completion in Civil Engineering.

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 faculty with appointment type, terminal degree title and field, academic title/rank, status (full-time, part-time, adjunct), and the course(s) each faculty member will teach in the proposed program.**

   The Department of the Built Environment at the University of Maryland Eastern Shore (UMES) has a qualified and experienced faculty prepared to support the proposed Bachelor of Science in Civil Engineering program. Currently, four (4) full-time, tenured faculty members with terminal doctoral degrees in civil or construction engineering fields are available to deliver the core and elective courses in the proposed program.

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

Course Prefix & Number	Course Title	Course Credit	Instructor Name	Instructor Title	Instructor Degree Field	Instructor Academic Rank	Instructor Status
CENG 201	Engineering Graphics	3	Ismail Farajpour	Ph.D.	Civil/Structural Engineering	Associate Professor	Full-time/Tenured
CENG 214	Surveying and Geomatics	3	Joseph Arumala	Ph.D.	Civil Engineering	Professor	Full-time/Tenured
CENG 230	Construction Materials	3	Joseph Arumala	Ph.D.	Civil Engineering	Professor	Full-time/Tenured
CENG 310	Structural Analysis	3	Ismail Farajpour	Ph.D.	Civil/Structural Engineering	Associate Professor	Full-time/Tenured
CENG 320	Introduction to Environmental Engineering	3	Joseph Arumala	Ph.D.	Civil Engineering	Professor	Full-time/Tenured
CENG 325	Construction Methods and Equipment	3	Carlos Salgado	Ph.D.	Construction Engineering and Management	Associate Professor	Full-time/Tenured
CENG 330	Introduction to Transportation Engineering	3	Joseph Arumala	Ph.D.	Civil Engineering	Professor	Full-time/Tenured

CENG 350	Fluid Mechanics and Hydraulics	3	Jeffrey Molavi	Ph.D.	Civil/Construction Engineering and Management	Professor	Full-time/Tenured
CENG 363	Properties and Mechanics of Materials Lab	1	Sandeep Aryal	Ph.D.	Mechanical Engineering	Assistant Professor	Full-time/ Tenure-track
CENG 395	Internship	1	Jeffrey Molavi	Ph.D.	Civil/Construction Engineering and Management	Professor	Full-time/Tenured
CENG 410	Structural Steel Design	3	Ismail Farajpour	Ph.D.	Civil/Structural Engineering	Associate Professor	Full-time/Tenured
CENG 412	Reinforced Concrete Design	3	Ismail Farajpour	Ph.D.	Civil/Structural Engineering	Associate Professor	Full-time/Tenured
CENG 415	Hydrology and Drainage	3	Jeffrey Molavi	Ph.D.	Civil/Construction Engineering and Management	Professor	Full-time/Tenured
CENG 427	Soil Mechanics and Foundation Engineering	3	Joseph Arumala	Ph.D.	Civil Engineering	Professor	Full-time/Tenured
CENG 459	Civil Engineering Design Project	3	Jeffrey Molavi	Ph.D.	Civil/Construction Engineering and Management	Professor	Full-time/Tenured
ENGE 260	Statics	3	MD Sarker	Ph.D.	Biomedical Engineering	Assistant Professor	Full-time/ Tenure-track
ENGE 261	Dynamics	3	Sandeep Aryal	Ph.D.	Mechanical Engineering	Assistant Professor	Full-time/ Tenure-track
ENGE 320	Statistics and Probability for Engineers	3	Russell Kohl	Ph.D.	Applied Mathematics and Mathematical Physics	Associate Professor	Full-time/Tenured
ENGE 362	Mechanics of Materials	3	Aaron Persad	Ph.D.	Mechanical and Industrial Engineering	Assistant Professor	Full-time/ Tenure-track
ENME 345	Thermodynamics	3	Abhijit Nagchaudhuri	Ph.D.	Mechanical Engineering	Professor	Full-time/Tenured
CENG 305	Engineering Economy	3	Jeffrey Molavi	Ph.D.	Civil/Construction Engineering and Management	Professor	Full-time/Tenured
CENG 326	Mechanical and Electrical Building Systems	3	Jeffrey Molavi	Ph.D.	Civil/Construction Engineering and Management	Professor	Full-time/Tenured
CENG 360	Introduction to Wind Energy and Turbine Technology	3	Jeffrey Molavi	Ph.D.	Civil/Construction Engineering and Management	Professor	Full-time/Tenured
CENG 386	Construction Planning and Scheduling	3	Carlos Salgado	Ph.D.	Construction Engineering and Management	Associate Professor	Full-time/Tenured
CENG 416	Water and Wastewater Treatment	3	Jeffrey Molavi	Ph.D.	Civil/Construction Engineering and Management	Professor	Full-time/Tenured
CENG 430	Highway Engineering	3	Joseph Arumala	Ph.D.	Civil Engineering	Professor	Full-time/Tenured
CENG 445	Construction Cost Estimating and Control	3	Carlos Salgado	Ph.D.	Construction Engineering and Management	Associate Professor	Full-time/Tenured
CENG 450	Sustainable Design and Construction	3	Joseph Arumala	Ph.D.	Civil Engineering	Professor	Full-time/Tenured

CENG 499	Undergraduate Research Project	1-6	Ismail Farajpour; Jeffrey Molavi; Joseph Arumala; Carlos Salgado	Ph.D.	Civil/Structural Engineering; Civil/Construction Engineering and Management; Civil Engineering; Construction Engineering and Management	Associate Professor; Professor; Professor Associate Professor	Full-time/Tenured
ENGE 370	Computational Methods in Engineering	3	Ricky Stanfield	Ph.D.	Aerospace/Mechanical Engineering	Associate Professor	Adjunct Faculty

The following reflects the four (4) full-time, tenured faculty members with terminal doctoral degrees in civil or construction engineering fields who will deliver the core and elective courses in the proposed program.

Faculty Name	**Appointment Type**	**Terminal Degree (Title & Field)**	**Academic Title / Rank**	**Status (FT/PT/Adjunct)**	**Courses Assigned in the Proposed Program**
Joseph Arumala	Tenured	Ph.D. in Civil Engineering	Professor	full-time	CENG 214-Surveying and Geomatics CENG 320-Introduction to Environmental Engineering CENG 330-Introduction to Transportation Engineering CENG 427-Soil Mechanics and Foundation Engineering Core Elective
Ismail Farajpour	Tenured	Ph.D. in Civil/Structural Engineering	Associate Professor	full-time	CENG 201-Engineering Graphics CENG 310-Structural Analysis CENG 410-Structural Steel Design CENG 412-Reinforced Concrete Design Core Elective
Jeffrey Molavi	Tenured	Ph.D. in Civil/Construction Engineering and Management	Professor	full-time	CENG 350-Fluid Mechanics and Hydraulics CENG 395-Internship CENG 415-Hydrology and Drainage CENG 459-Civil Engineering Design Project Core Elective
Carlos Salgado	Tenured	Ph.D. in Construction Engineering and Management	Associate Professor	full-time	CENG 230-Construction Materials CENG 325-Construction Methods and Equipment Core Elective

The Department of the Built Environment at the University of Maryland Eastern Shore (UMES) has qualified and experienced faculty to support the proposed BS in Civil Engineering program. In addition to Civil Engineering courses, the Department of Engineering at UMES offers foundational courses that support the curriculum. The Department of Mathematics offers one of the core courses. All core and elective courses with term, year taken and assigned faculty are listed in the table below.

Category	Course Prefix & Number	Course Name	Level	Semester	Faculty Name	Associated Department of the Faculty
Core	CENG 201	Engineering Graphics	Sophomore	Fall	Ismail Farajpour	Built Environment
Core	CENG 214	Surveying and Geomatics	Sophomore	Spring	Joseph Arumala	Built Environment
Core	CENG 230	Construction Materials	Sophomore	Spring	Joseph Arumala	Built Environment
Core	CENG 310	Structural Analysis	Junior	Spring	Ismail Farajpour	Built Environment
Core	CENG 320	Introduction to Environmental Engineering	Junior	Spring	Joseph Arumala	Built Environment
Core	CENG 325	Construction Methods and Equipment	Junior	Fall	Carlos Salgado	Built Environment
Core	CENG 330	Introduction to Transportation Engineering	Junior	Spring	Joseph Arumala	Built Environment
Core	CENG 350	Fluid Mechanics and Hydraulics	Junior	Spring	Jeffrey Molavi	Built Environment
Core	CENG 363	Properties and Mechanics of Materials Lab	Junior	Fall	Sandeep Aryal	Engineering
Core	CENG 395	Internship	Junior	Summer	Jeffrey Molavi	Built Environment
Core	CENG 410	Structural Steel Design	Senior	Fall	Ismail Farajpour	Built Environment
Core	CENG 412	Reinforced Concrete Design	Senior	Spring	Ismail Farajpour	Built Environment
Core	CENG 415	Hydrology and Drainage	Senior	Fall	Jeffrey Molavi	Built Environment
Core	CENG 427	Soil Mechanics and Foundation Engineering	Senior	Fall	Joseph Arumala	Built Environment
Core	CENG 459	Civil Engineering Design Project	Senior	Spring	Jeffrey Molavi	Built Environment
Core	ENGE 260	Statics	Sophomore	Fall	MD Sarker	Engineering
Core	ENGE 261	Dynamics	Sophomore	Spring	Sandeep Aryal	Engineering

Core	ENGE 320	Statistics and Probability for Engineers	Junior	Fall	Russell Kohl	Mathematics
Core	ENGE 362	Mechanics of Materials	Junior	Fall	Aaron Persad	Engineering
Core	ENME 345	Thermodynamics	Junior	Fall	Abhijit Nagchaudhuri	Engineering
Elective	CENG 305	Engineering Economy	Senior	Spring	Jeffrey Molavi	Built Environment
Elective	CENG 326	Mechanical and Electrical Building Systems	Senior	Spring	Jeffrey Molavi	Built Environment
Elective	CENG 360	Introduction to Wind Energy and Turbine Technology	Senior	Spring	Jeffrey Molavi	Built Environment
Elective	CENG 386	Construction Planning and Scheduling	Senior	Spring	Carlos Salgado	Built Environment
Elective	CENG 416	Water and Wastewater Treatment	Senior	Spring	Jeffrey Molavi	Built Environment
Elective	CENG 430	Highway Engineering	Senior	Spring	Joseph Arumala	Built Environment
Elective	CENG 445	Construction Cost Estimating and Control	Senior	Spring	Carlos Salgado	Built Environment
Elective	CENG 450	Sustainable Design and Construction	Senior	Spring	Joseph Arumala	Built Environment
Elective	CENG 499	Undergraduate Research Project	Senior	Spring	Ismail Farajpour/Jeffrey Molavi/Joseph Arumala/Carlos Salgado	Built Environment
Elective	ENGE 370	Computational Methods in Engineering	Senior	Spring	Ricky Stanfield	Engineering

The table below includes the appointment type, terminal degree, academic title, and status for all faculty members involved in offering the core courses of the Civil Engineering program, including those who are not part of the Department of Built Environment.

Faculty Name	Associated Department of the Faculty	Appointment Type	Terminal Degree	Academic Title	Status
Carlos Salgado	Built Environment	9- month	Ph.D. in Construction Engineering and Management	Associate Professor	Full-time/Tenured
Ismail Farajpour	Built Environment	12-month	Ph.D. in Civil/Structural Engineering	Associate Professor	Full-time/Tenured
Jeffrey Molavi	Built Environment	9- month	Ph.D. in Civil/Construction Engineering and Management	Professor	Full-time/Tenured
Joseph Arumala	Built Environment	9- month	Ph.D. in Civil Engineering	Professor	Full-time/Tenured
Aaron Persad	Engineering	9- month	Ph.D. in Mechanical and Industrial Engineering	Assistant Professor	Full-time, Tenure-track
Abhijit Nagchaudhuri	Engineering	9- month	Ph.D. in Mechanical Engineering	Professor	Full-time/Tenured
MD Sarker	Engineering	9- month	Ph.D. in Biomedical Engineering	Assistant Professor	Full-time, Tenure-track
Ricky Stanfield	Engineering	Part Time	Ph.D. in Aerospace/Mechanical Engineering	Associate Professor	Adjunct Faculty
Sandeep Aryal	Engineering	9- month	Ph.D. In Mechanical Engineering	Assistant Professor	Full-time, Tenure-track
Russell Kohl	Mathematics	9- month	Ph.D. in Applied Mathematics and Mathematical Physics	Associate Professor	Full-time/Tenured

The UMES Department of Engineering currently offers and teaches foundational engineering courses that support the proposed curriculum, including:

CENG 363 – Properties and Mechanics of Materials Lab
ENGE 260 – Statics
ENGE 261 – Dynamics
ENGE 320 – Statistics and Probability for Engineers
ENGE 362 – Mechanics of Materials
ENGE 370 – Computational Methods in Engineering
ENME 345 – Thermodynamics

The Department of Built Environment is also in the process of hiring one additional faculty member for Fall 2026, which will further strengthen instructional capacity and support program growth.

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

a) Pedagogy that meets the needs of the students

The University of Maryland Eastern Shore (UMES) supports faculty development through ongoing professional development, ensuring the use of evidence-based teaching practices that enhance student success. Faculty participate in workshops, seminars, and learning communities led by the Center for Teaching Excellence (CTE), emphasizing active learning, inclusive pedagogy, assessment strategies, and continuous course improvement.

The Department of the Built Environment further supports faculty development through participation in conferences and workshops, including the Accreditation Board for Engineering and Technology (ABET) and American Council for Construction Education (ACCE), to strengthen pedagogical practices in civil and construction engineering education.

b) The learning management system

UMES provides faculty with ongoing training in the Canvas LMS through webinars and workshops led by the Center for Instructional Technology and Online Learning (CITOL). Training covers course design, content delivery, assessment tools, accessibility features, and feedback mechanisms. Faculty also have access to continuous technical assistance, ensuring effective integration of the LMS to enhance student learning.

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

Some courses in the program may be offered in online or hybrid formats. Faculty receive training through the Center for Instructional Technology and Online Learning (CITOL) on course alignment, online engagement, accessibility, and assessment. Courses are regularly reviewed, and faculty receive feedback to ensure and improve the quality of distance education.

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.

The Frederick Douglass Library at the University of Maryland Eastern Shore provides a multiplicity of print and digital resources to support the mission and academic programs of the university. According to the Library's website, "As a member of the University System of Maryland and Affiliated Institutions (USMAI) consortium, the library is affiliated with seventeen academic libraries to share

library resources. The integrated library system, ALEPH, makes it possible for our patrons to have 24/7 access to the library catalog, USMAI collections, and electronic resources. These digital resources available from the library's website include over 100 research databases that provide access to eBooks and full-text coverage of thousands of scholarly journals, magazines, and newspapers." (Source: https://umes.libguides.com/library_admin/overview)

Before the start of each semester, the Frederick Douglass Library reaches out to faculty to identify the resources that will be used in their upcoming courses. The library ensures that these materials, including textbooks, are available to students by the first day of classes. This proactive approach helps support student learning and ensures that all course-related resources are readily accessible from the beginning of the semester.

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

1. **Provide an assurance that 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.**

The University of Maryland Eastern Shore's Department of the Built Environment is housed in the Thomas & Briggs Arts and Technologies Complex (ATC), a 37,878-square-foot facility that serves both the Department of Fine Arts and the Department of the Built Environment. Within the Built Environment suite, there are nine designated offices for faculty and staff to facilitate student advising, office hours, and administrative duties. There are also two offices for files, a copier, and storage as well as a conference room. The ATC houses instructional classroom space and instructional laboratory space (as detailed below), which makes it convenient for students to take classes and conduct laboratory experiments in the same building.

Instructional Classroom Space – At the ATC building, there is a Project Planning Room, a small computer laboratory used as a classroom. In addition, there is a larger classroom with a projector for instructional purposes. The building also houses a Computer-Aided Drafting and Design Lab, equipped with 13 recently upgraded computers and a new 98-inch display, along with the necessary software packages to support the new program.

The Student Resource Center includes nine newly upgraded computers, a 98-inch display, conference tables, previous edition textbooks, industry publications, and a large plotter/printer. Designed as an open resource lab for students in the Department of the Built Environment, it has limited scheduled classes, and students can use this space for software access, research, and small group study.

In addition to the labs in the ATC building, students have access to the computer labs in the Engineering and Aviation Science Complex (EASC) building. All computer labs receive ongoing technical support from the UMES Department of Information Technology (IT).

Instructional Laboratory Space/Equipment – The Department of the Built Environment is housed in the Arts and Technology building, which includes multiple laboratory spaces and equipment.

- The Construction Laboratory is an area where students apply skills and knowledge related to construction technology. This lab contains various woodworking equipment and hand tools. It is divided by portable dividers that separate the learning and activity areas. The learning area is equipped with whiteboards, desks, chairs, and furniture, while the activity area houses equipment such as lathes, drill presses, planers, jointers, miter saws, table saws, scroll saws, and large worktables for student projects.

- The Soil Mechanics Laboratory (located in one portion of the Construction Laboratory) is equipped for experiments in soil behavior and geotechnical testing. Key apparatus includes Proctor compaction test equipment, California Bearing Ratio (CBR) test setup, direct shear, Atterberg limits apparatus, a lab oven, and a sieve set for grain size analysis. The lab provides practical experience in evaluating soil properties and understanding their engineering applications.

- The Surveying Equipment Storage: The Surveying equipment is maintained in a designated storage space and used primarily for field measurement and surveying exercises. Key instruments include measuring tapes and chains, tripods and ranging rods, prismatic compasses, auto levels, theodolites, and total stations. The lab supports practical learning in surveying techniques and accurate measurement.

- The Resource Laboratory contains a 3D printer and various pieces of construction equipment, all available for student projects.

In addition to these departmental labs, a couple of laboratories in the Engineering and Aviation Science Complex (EASC) building on the UMES main campus, within walking distance of the ATC, will also be utilized to further support experimental learning.

- The Statics and Materials Laboratory accommodate up to 20 students. It provides experience with material strength and behavior through experiments such as hardness testing, shear and torsion testing, compression and tension testing, strain measurement, beam deflection

analysis, beam and cylinder testing, impact testing, and fatigue testing. These activities give students practical skills in evaluating and testing a wide range of materials.

- The Thermal/Fluid Laboratory includes equipment for hydraulics, fluid mechanics, and heat transfer. Students gain experience through experiments such as flow channels, hydraulic benches, airflow analysis, Bernoulli's principle, friction losses in pipes, flow measurement, stability of floating bodies, center of pressure, impact of jets, Reynolds number studies, air conditioning systems, steam turbines, convection and radiation heat transfer, and temperature measurement and calibration. This laboratory supports studies in water resources, environmental engineering, and building systems.

The classroom and laboratory spaces are equipped to support the activities in the new courses and research activities. Equipment maintenance and consumable materials are included in the annual budget of the program (TABLE 2).

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, and

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

a) All enrolled students and hired faculty at the University of Maryland Eastern Shore are assigned official university email accounts. They also have access to video conferencing via Microsoft Teams.

b) All enrolled students and hired faculty have access to Canvas, the official Learning Management System at UMES. Faculty members receive support for course development and instruction from the Center for Instructional Technology and Online Learning (CITOL) as well as the Academic Computing Unit. Additionally, the Department of Information Technology (IT) provides Helpdesk services, computer support, and maintenance for the campus data network, telephone systems, classroom technology, computer labs, technology procurement, data center, email, and network storage.

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

The financial sustainability and break-even point for the proposed program have been carefully evaluated by the department as part of the program development process. This analysis considered current resource utilization, enrollment trends, and projected revenue growth to ensure that the program is fiscally sound from inception and sustainable over time.

The department currently operates within a financially stable model in which the revenue generated from tuition and fees across its portfolio of academic programs exceeds the annual costs associated with faculty salaries, fringe benefits, and support staff. This existing surplus demonstrates that the department is operating above its break-even point and has the capacity to support additional programmatic offerings.

The proposed program is expected to further strengthen this financial position by increasing student enrollment and associated tuition revenue without requiring additional faculty hires or expansion of support staff. The program will leverage existing instructional capacity, infrastructure, and administrative resources, allowing for efficient scaling and cost containment.

Enrollment projections for the program reflect steady, controlled growth and have been developed to ensure that the program remains financially viable throughout its implementation. As enrollment increases, the additional tuition and fee revenue will contribute positively to the department's overall revenue stream, further reinforcing its financial sustainability.

In addition, the department intends to pursue accreditation through the Accreditation Board for Engineering and Technology (ABET). This process requires ongoing assessment and monitoring of program quality, resources, and financial stability, providing an added layer of accountability and assurance regarding the program's long-term sustainability.

Based on these considerations, the proposed resources are sufficient to cover all anticipated program expenses. The program is therefore financially viable, operates above the break-even point at launch, and is positioned to generate additional revenue while maintaining high academic quality and operational efficiency.

1. **Complete Table 1. Resources and Narrative Rationale. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year. Also, provide a narrative rationale for each resource category. If resources have been or will be reallocated to support the proposed program, briefly discuss the sources of those funds.**

TABLE 1: RESOURCES					
Resources Categories	**(Year 1)**	**(Year 2)**	**(Year 3)**	**(Year 4)**	**(Year 5)**
1. Reallocated Funds	$0	$0	$0	$0	$0
2. Tuition / Fee Revenue (C + G below)	$71,415	$117,027	$164,436	$213,694	$264,857
A. # of FT Students	7	11	15	19	23
B. Annual Tuition / Fee Rate	$9,366	$9,553	$9,744	$9,939	$10,138
C. Annual / Full-Time Revenue (A x B)	$65,559	$105,081	$146,158	$188,836	$233,163
D. # of PT Students	2	4	6	8	10
E. Credit Hour Rate	$244	$249	$254	$259	$264
F. Annual Credit Hours	12	12	12	12	12
G. Total Part-Time Revenue (D x E x F)	$5,856	$11,946	$18,278	$24,858	$31,694
3. Grants, Contracts & Other External Sources	$0	$0	$0	$0	$0
4. Other Sources	$0	$0	$0	$0	$0
TOTAL (Add 1 – 4)	$71,415	$117,027	$164,436	$213,694	$264,857

Narrative Rationale for Table 1: Resources

1. **Reallocated Funds**
   No reallocated funds are expected for the launch or continuation of the Civil Engineering program. The program will be supported through new revenue sources and existing departmental infrastructure.

2. **Tuition and Fee Revenue**
   The annual in-state tuition rate is $9,365.50 for full-time students. For part-time students, the credit hour rate is $244.00 per credit hour, with calculations for 6 credits per semester or 12 credits per academic year. The above fees are based on a 2% tuition rate increase per year.

3. **Grants and Contracts**
   Currently, no additional external sources of funding, such as grants or contracts, are expected to support the proposed program. However, the department may pursue such opportunities in the future.

4. **Other Sources**
   No additional sources of funding are expected at this time.

5. **Total Year: A 5-year estimate is provided.**
   The total projected revenue over the five years is based solely on tuition and fee income, as detailed above. This revenue will be allocated to instructional costs, equipment, and program development.

2. Complete Table 2. Program Expenditures and Narrative Rationale. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year. Also, provide a narrative rationale for each expenditure category.

TABLE 2: EXPENDITURES					
Expenditures Categories	**(Year 1)**	**(Year 2)**	**(Year 3)**	**(Year 4)**	**(Year 5)**
1. Total Faculty Expenses (B + C below)	$0	$0	$0	$0	$0
A. # FTE	0	0	0	0	0
B. Total Salary	$0	$0	$0	$0	$0
C. Total Benefits	$0	$0	$0	$0	$0
2. Total Administrative Staff Expenses (B + C below)	$0	$0	$0	$0	$0
A. # FTE	0	0	0	0	0
B. Total Salary	$0	$0	$0	$0	$0
C. Total Benefits	$0	$0	$0	$0	$0
3. Total Support Staff Expenses (B + C Below)	$0	$0	$0	$0	$0
A. # FTE	0	0	0	0	0
B. Total Salary	$0	$0	$0	$0	$0
C. Total Benefits	$0	$0	$0	$0	$0
4. Equipment	$30,000	$30,600	$31,212	$31,836	$32,473
5. Library	$1,000	$1,020	$1,040	$1,061	$1,082
6. New or Renovated Space	$5,000	$5,100	$5,202	$5,306	$5,412
7. Other Expenses	$10,000	$10,200	$10,404	$10,612	$10,824
TOTAL (Add 1 – 7)	$46,000	$46,920	$47,858	$48,816	$49,792

Narrative Rationale for Table 2: Expenditures

1. **Faculty (Number of FTE, Salary, and Benefits)**
   No additional faculty is required to launch the program. The existing department faculty will be sufficient to support the program.

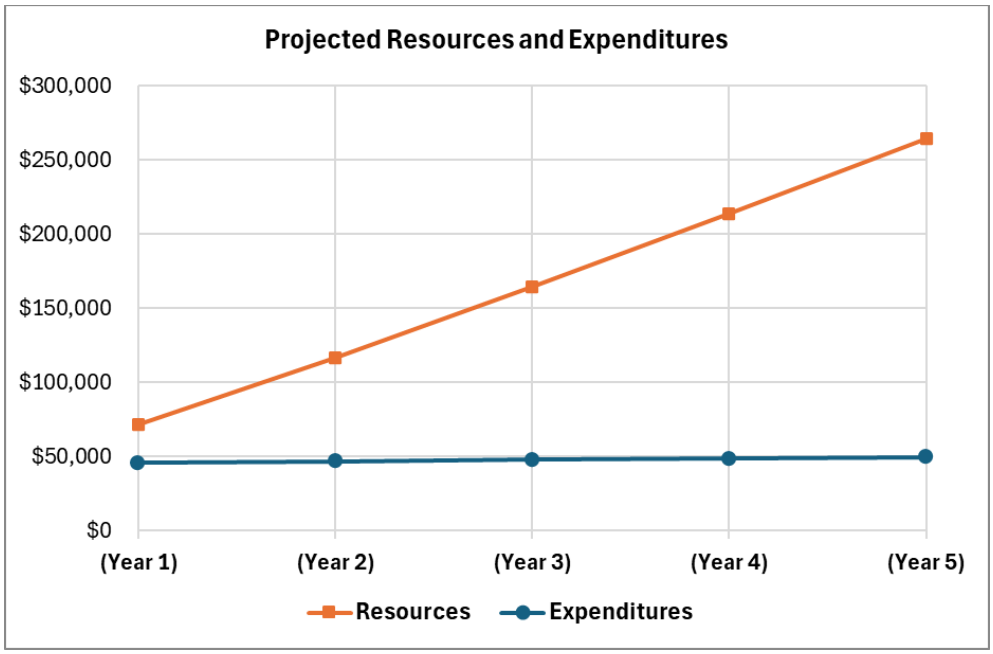
2. **Support Staff (Number of FTE, Salary, and Benefits)**
   No additional support staff is required. The existing department administrative staff will be sufficient to support the program.

3. **Equipment**
   The school has the initial equipment and facilities to launch the proposed program, including instructional spaces and laboratories in the ATC and EASC buildings, equipped with upgraded computers, large displays, surveying instruments, construction equipment, and essential apparatus for the Soil Mechanics Laboratory. Additional support is provided by the Statics and Materials Laboratory and the Thermal/Fluid Laboratory in the EASC building, which offers laboratory experience in material testing, hydraulics, fluid mechanics, and heat transfer. Ongoing maintenance, upgrades, and consumables have been budgeted to ensure continued functionality and support future program development. These costs are included in the annual expenditure and are projected to increase by 2 percent annually.

4. **Library**
   Given the existing robust collection of resources available for the construction-related disciplines, only minimal funds are required to acquire Civil Engineering textbooks and academic resources specific to the new curriculum. These costs are included in the annual expenditure and are projected with a 2 percent annual increase.

5. **New and/or Renovated Space**
   Only minor space renovations are anticipated. This includes modest updates such as painting and reconfiguring existing classroom and laboratory areas within the Thomas & Briggs Arts and Technologies Complex and the EASC building to accommodate the new program. These costs are included in the annual expenditure with a 2 percent annual increase.

6. **Other Expenses**
   Funds for professional development opportunities, such as ABET accreditation training, are to be allocated. Additionally, vendor training for the proper use and integration of equipment upgrades will be provided as needed. These costs are included in the annual expenditure with a 2 percent annual increase.



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 University of Maryland Eastern Shore employs a comprehensive and systematic approach to the evaluation process for courses, faculty, and student learning outcomes. Each course syllabus includes specific course learning outcomes aligned with broader student learning outcomes. These are assessed through embedded questions on tests, assignments, and portfolios, with data collected and analyzed to improve course content and teaching methodologies.

Courses undergo systematic evaluation through student feedback, where students reflect on course structure, content, and instructor performance. This feedback is reviewed by faculty members, the department chair, and the school administration to determine if curriculum adjustments or pedagogical improvements are needed.

Faculty are evaluated annually based on teaching effectiveness, research productivity, and service contributions at the department and university levels. Student evaluations of faculty are conducted at the end of each semester, and these ratings, along with peer reviews and scholarly contributions, influence the overall performance assessment. The tenured faculty also undergo post-tenure reviews every five years. Faculty members receiving lower evaluations may be placed on improvement plans to enhance their teaching effectiveness.

Student learning outcomes are assessed using direct measures such as graded assignments, quizzes, exams, project evaluations, and presentations. Rubrics developed for each outcome determine achievement levels. Continuous assessment and improvement efforts align with accreditation requirements. This evaluation framework ensures that the Civil Engineering program remains responsive to student needs, maintains academic rigor, and fosters a culture of continuous improvement.

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.**

   Once the B.S. in Civil Engineering program is launched, it will enter the institution's structured course evaluation system. Program outcomes will be assessed through direct and indirect evaluation procedures like those used for other accredited degree programs.

   The effectiveness of the program will be reviewed through periodic academic program assessments, conducted every five years. The Office of Decision Science and Visualization, in collaboration with the Department Chair, will collect and analyze data on program enrollment, retention, and graduation rates. This analysis will guide program enhancements and align with institutional goals. Additionally, comprehensive accreditation reviews by ABET will occur every six years to ensure continuous improvement and adherence to national standards.

   Student retention and satisfaction will be monitored using course evaluations and exit interviews. Maintaining a high-quality program, updating the curriculum to reflect industry advancements, hiring and retaining qualified faculty, and fostering a supportive learning environment will be key strategies for ensuring student engagement and success.

   Faculty satisfaction and program cost-effectiveness will be evaluated through performance reviews, faculty feedback, and an analysis of operational expenses versus program enrollment and job placement outcomes. Through these multi-faceted evaluation strategies, the university will ensure that the Civil Engineering program delivers high-quality, outcomes-driven education that meets the needs of students, employers, and the broader community.

N. Consistency with the State's Minority Student Achievement Goals (as outlined in COMAR 13B.02.03.05).

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

The proposed B.S. in Civil Engineering program directly supports the mission of the University of Maryland Eastern Shore and the State of Maryland's minority achievement goals. As an 1890 land-grant HBCU, UMES attracts a diverse student body, with the majority being African American, as well as individuals from multiethnic and multicultural backgrounds. The University actively recruits minority students for all undergraduate and graduate degree programs, with a particular emphasis on increasing diversity in STEM and multidisciplinary fields at the undergraduate and graduate levels. The same commitment will be extended to the B.S. in Civil Engineering program.

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.**

   The proposed B.S. in Civil Engineering program has no relationship with low-productivity programs.

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.**

   The proposed B.S. in Civil Engineering program is not a distance education program. Some general or supportive courses may have online delivery options; however, the core courses will be delivered primarily in-person.

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

   Not applicable.

☒ **New Agreement** ☐ **Revised Agreement** ☐ **Provisional Agreement**
☐ **Effective Date:** ☐ **Next Review Date:**

ACADEMIC PROGRAM ARTICULATION AGREEMENT BETWEEN WOR-WIC COMMUNITY COLLEGE AND UNIVERSITY OF MARYLAND EASTERN SHORE REGARDING THE TRANSFER FROM ASSOCIATE OF SCIENCE IN STEM, ENGINEERING CONCENTRATION TO BACHELOR OF SCIENCE IN CIVIL ENGINEERING

This Academic Program Articulation Agreement ("Agreement") is entered into by and between Wor-Wic Community College (the "Sending Institution") and the University of Maryland Eastern Shore (the "Receiving Institution") (collectively, the "Institutions") to facilitate the transfer of academic credits from the STEM, Engineering Concentration, Associate degree, for the completion Civil Engineering, Bachelor's degree (the "Program(s)"):

Institution	Program ID/Title	Award Type	Statewide CIP
Wor-Wic Community College	490200 – STEM, Engineering Concentration	Associate's Degree	419999
University of Maryland Eastern Shore	0908 – Civil Engineering	Bachelor's Degree	140801

A. Qualifying Students

This Agreement pertains to the transfer of "Qualifying Students", *i.e.*, those students who:
1. Have completed the STEM, Engineering Concentration at Wor-Wic Community College in good standing and with a minimum CGPA of 2.0/4.0;
2. Are accepted for admission to the University of Maryland Eastern Shore; and
3. Are enrolled in Civil Engineering.

B. Responsibilities of the Institutions

The Institutions agree to implement the transfer of Qualifying Students in accordance with applicable law and the following requirements and protocols:

1. A Qualifying Student may transfer from Wor-Wic Community College to the University of Maryland Eastern Shore for the completion of the Bachelor of Science in Civil Engineering.

2. Courses that the University of Maryland Eastern Shore will accept credits for towards completion of the Bachelor of Science in Civil Engineering:

PROGRAM ARTICULATION TABLE

	Wor-Wic Community College	University of Maryland Eastern Shore
Program name	STEM Transfer *(Engineering Concentration)*	Civil Engineering
Award Type (e.g., AAS)	AS	BS
Credit Length	60	120

SECTION A - General Education

Wor-Wic Community College			University of Maryland Eastern Shore			
Course Prefix & Number	Course Name	Credits	Course Prefix & Number	Course Name	Credits Applied	Elective Credits
SDV 100	Fundamentals of College Study	1	ENGE 100	First Year Orientation with Engineering	1	
ENG 101	Fundamentals of English I	3	ENGL 101	Principles of Composition I	3	
MTH 201	Calculus I	4	MATH 112	Calculus I	4	
PHY 141	Principles of Physics I	4	PHYS 161/163	General College Physics I w/lab	4	
ENG 151	Fundamentals of English II	3	ENGL 102	Principles of Composition II	3	
ECO 151*	Principles of Macroeconomics (*Social/Behavioral Science Elective*)	3	ECON 201	Principles of Economics (Macro)	3	
COM 101 *or* COM 200*	Introduction to Public Speaking *or* Interpersonal Communication (*General Education Elective*)	3	ENGL 203	Fundamentals of Interpersonal Communication	3	
OFT-101*	Intro to Computers (*General Education Elective*)	3	BUED 212	Computer Concepts/Applications I	3	
ART 101**	Introduction to Art History (*Arts and Humanities*)	3	ARTS 101	Exploration of the Visual Arts	3	
PSY 101**	Introduction to Psychology (*Social/Behavioral Science*)	3	PSYC 100	Introduction to Psychology	3	
	General Education Total	**30**		**Section A Subtotal**	**30**	

Special Notes, if any:

** UMES recommends students complete ECO 151 and COM 101 or COM 200 and OFT-101*
*** Courses listed are options; multiple courses may apply in the Arts and Humanities and Social/Behavioral Science areas and may be accepted upon review.*

SECTION B – Program Core / Supportive Requirement

Course Prefix & Number	Course Name	Credits	Course Prefix & Number	Course Name	Credits Applied	Elective Courses
EGR 101	Introduction to Engineering Design	3	CENG 201	Engineering Graphics	3	
MTH 202	Calculus II	4	MATH 211	Calculus II	4	
PHY 142	Principles of Physics II	4	PHYS 262/264	General Physics II: Waves, Heat & Electricity w/Lab	4	
CHM 105	General Chemistry	4	CHEM 111/113	General Chemistry I w/Lab	4	
EGR 202	Statics	3	ENGE 260	Statics	3	
MTH 205	Differential Equations	4	MATH 241	Elements of Differential Equations for Engineers	3	1
MTH 203	Calculus III	4	MATH 212	Calculus III	4	
PHY 243	Principles of Physics III	4	PHYS 263/265	General Physics III: Magnetism, Electrodynamics, and Optics	0	4
	Program / Major Requirement Total	**30**		**Section A Subtotal**	**25**	**5**
				Total College Credits Applied (sum of sections A and B)	**55**	

Special Notes, if any:

SECTION C - Remaining University of Maryland Eastern Shore Requirements			
	UMES (General Education)		
	ENVS 101	Introduction to Environmental Science	3
	JEDI Course	BUAD 311, CRJS 455, DMST 440, ENGL 348, ENGL 359, EXSC 111, EXSC 265, EXSC 382, HUEC 230, HUEC 463	3
	ENGL 305 or ENGL 310	Technical Writing, or Advanced Composition	3
		Remaining General Education Courses Subtotal	**9**
	Supportive Math-Science-Business-Computer Courses		
	CSDP 120	Introduction to Computer Programming	3
		Remaining Supportive Courses Subtotal	**3**
	Core Courses		
	CENG 214	Surveying and Geometrics	3
	CENG 230	Construction Materials	3
	CENG 310	Structural Analysis	3
	CENG 320	Introduction to Environmental Engineering	3
	CENG 325	Construction Methods and Equipment	3
	CENG 330	Introduction to Transportation Engineering	3
	CENG 350	Fluid Mechanics and Hydraulics	3
	CENG 363	Properties and Mechanics of Materials Lab	1
	CENG 395	Internship	1
	CENG 410	Structural Steel Design	3
	CENG 412	Reinforced Concrete Design	3
	CENG 415	Hydrology and Drainage	3
	CENG 427	Soil Mechanics and Foundation Engineering	3
	CENG 459	Civil Engineering Design Project	3
	Core Elective	Please see the academic advisor	3
	ENGE 261	Dynamics	3
	ENGE 320	Statistics and Probability for Engineers	3
	ENGE 362	Mechanics of Materials	3
	ENME 345	Thermodynamics	3
		Remaining Core Courses Subtotal	**53**
	Core Elective Courses		
		Remaining General Education Courses Subtotal	**9**
		Remaining Supportive Courses Subtotal	**3**
		Remaining Program Core Subtotal	**53**
		Total Remaining UMES Credits	**65**
		Total Credits for bachelor's degree (Wor-Wic and UMES)	**120**
Special Notes, if any:			

*Receiving Institution must indicate if the course is applied to General Education, Program/ Major requirements, or General Elective.

3. The Receiving Institution shall designate, and shall provide to the Sending Institution, the contact information for a staff person at the Receiving Institution who is responsible for the oversight of the transfer of Qualifying Students. The Sending Institution shall designate, and shall provide to the Receiving Institution, the contact information for a staff person at the Sending Institution who is responsible for the oversight of the transfer of Qualifying Students.

	Wor-Wic Community College	**University of Maryland Eastern Shore**
Name of staff person responsible for oversight	Ms. Rhoda Lukens	Dr. Etahe Johnson
Title of staff person	Registrar	Academic Support Associate / Articulation Liaison
Email address	rlukens@worwic.edu	ejohnson2@umes.edu
Telephone Number	410-334-2908	410-651-6038

Should the staff person or position change, the institution will promptly provide new contact information to the partner institution and inform the Maryland Higher Education Commission of the change.

Additional contact information:

Direct Points of Contact for Articulation Agreement	**Wor-Wic Community College**	**University of Maryland Eastern Shore**
Other staff person responsible for oversight	Dr. Stacey Hall	Dr. Willie L. Brown, Jr.
Title of staff person	Dean of STEM	Vice Provost for Faculty Affairs
Email address	shall@worwic.edu	wlbrown@umes.edu
Telephone Number		410-651-6038

4. If the Qualifying Student is using federal Title 38 VA Education Benefits (GI Bill® Education Benefits), the Institutions shall adhere to all applicable U.S. Department of Veterans Affairs' regulations, including the regulations governing the awarding prior credit, as regulated under Title 38, Code of Federal Regulations, Sections 21.4253(d)(3) and 21.4254(c)(4).

5. The transfer of Qualifying Students shall adhere to all applicable transfer requirements set forth in the Annotated Code of Maryland and the Code of Maryland Regulations.

6. Each Institution shall advise students regarding transfer opportunities under this Agreement, and shall advise students of financial aid opportunities and implications associated with the transfer.

7. Should either Institution makes changes to program requirements, the institution will inform the partner institution immediately. The articulation agreement should be updated to reflect the changes and forwarded to the Maryland Higher Education Commission.

C. Term and Termination

1. This Agreement shall become effective on the date it is signed by the appropriate and authorized representatives of each Institution.

2. The initial term of this Agreement shall be five (5) years from the effective date. Thereafter, the Agreement shall automatically renew for successive five (5)-year terms unless either

Institution provides written notice of termination at least thirty (30) days prior to the expiration of the then-current term.

3. Either Institution may, at its sole discretion, terminate this Agreement by delivering thirty (30) days' written notice to the other Institution and the Maryland Higher Education Commission. If this Agreement is terminated prior to the end of the initial five (5)-year term, it shall automatically renew unless both Institutions mutually agree in writing to forego the renewal.

4. Both Institutions agree to meet once every two (2) years to review the terms of this Agreement and assess its effectiveness.

D. Amendment

1. This Agreement constitutes the entire understanding and agreement between the Institutions regarding their rights and obligations under the terms of the Agreement, superseding any prior or contemporaneous agreements or understandings.

2. This Agreement may be modified only by a written amendment executed by both Institutions.

E. Governing Law

This Agreement shall be governed by, and construed in accordance with, the laws of the State of Maryland.

F. Counterparts

This Agreement may be executed in counterparts, each of which shall be deemed to be an original, but all of which, taken together, shall constitute one and the same agreement.

G. Notice of Agreement

1. The Institutions agree to provide a copy of this Agreement, with any amendments, to the Maryland Higher Education Commission.

2. The Institutions agree to provide copies of this Agreement to all relevant individuals and departments of the Institutions, including but not limited to students, academic department chairs participating in the transfer, offices of the president, registrar's offices, and financial aid offices.

H. No Third-Party Beneficiaries

There are no third-party beneficiaries to this Agreement.

I. Representations and Warranties of the Parties

Both Institutions represent and warrant that the following shall be true and correct as of the Effective Date of this Agreement, and shall continue to be true and correct during the term of this Agreement:

1. The Institutions are and shall remain in compliance with all applicable federal, state, and local statutes, laws, ordinances, and regulations relating to this Agreement, as amended from time to time.

2. Each Institution has taken all action necessary for the approval and execution of this Agreement.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives.

Signatures:

University of Maryland Eastern Shore	**Wor-Wic Community College**
By: Heidi M. Anderson Dr. Heidi M. Anderson, President	By: Deborah Casey Dr. Deborah Casey, President
05 / 12 / 2026 Date	5/11/2026 Date

Letter of Support

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May 19, 2026

Dr. Derrek B. Dunn
Professor of Computer Science and Engineering
Dean, School of Business and Technology
University of Maryland Eastern Shore
306656 Student Service Center
EASC Complex, Suite 30876
Princess Anne, MD 21853

Dear Dr. Dunn:

As in previous years, on behalf of the Eastern Shore Branch of the American Society of Civil Engineers, I offer this letter of support for any new or larger Civil Engineering/Construction Engineering and Management Program.

The Eastern Shore Branch of the Maryland Section of the American Society of Civil Engineers is formed of members from the Eastern Shore counties of Caroline, Dorchester, Kent, Queen Anne, Somerset, Talbot Worcester and Wicomico. The members of the Branch are employed by public and private firms and represent a cross section of the Civil Engineering specialty work being done here. The Branch and its members are engaged in activities that promote their professional development and the development of the Civil Engineering Profession. Over the years we have been actively engaged in assisting with STEM programs in local schools and with Career Fairs at schools.

One of the challenges we have faced on the Eastern Shore is that there has been no accredited Civil Engineering degree program offered by either of the two universities in this area. Therefore, we are always elated when we learned of possible Bachelors or Masters programs in Civil Engineering/Construction Engineering.

Nationally, there is an overall need of civil engineers. Of particular concern to us has been the challenge local engineering firms have faced to attract and retain civil engineering employees. This degree program will go a long way in solving this problem, because locally raised and locally trained civil engineers will be more willing to stay and work on the Eastern Shore. The degree program will keep the cost of college education down for local students and also provide educational resources for practicing engineers.

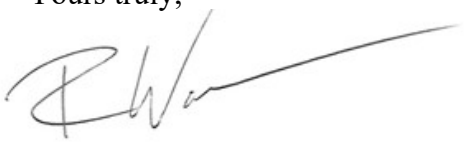
To gauge interest in the development of a local Civil Engineering/Construction Engineering degree program, in 2020 the Branch surveyed Eastern Shore employers to see what their degree

of interest is in hiring graduates from a local university. We contacted 43 public and private civil engineering employers. These were public agencies and private design and construction firms. About half responded. At that time there were openings for 25 to 50 civil engineers. There was an interest in hiring student interns. All the firms stressed their difficulty in hiring Civil Engineers. This indicates to us, that there will be a good job market for your graduates.

The ASCE Branch members are prepared to work with students enrolled in your program by encouraging professional development, assisting them in the formation of a UMES Student Chapter of ASCE, providing scholarship money, and providing opportunities for internships and later permanent employment. Our members will be available as mentors and guest speakers to provide practical insight into actual construction projects. Our members will offer your faculty opportunity to be involved with the local engineering community. As and where necessary, our members will be available as adjunct faculty.

We are very excited about the possible creation of a Civil Engineering/Construction Engineering Program and we look forward to working with you for its successful development.

Yours truly,



Ryan C. Ward, P.E.
Secretary – ASCEMD Eastern Shore Branch