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Make Tomorrow Yours

Dr. Sanjay K. Rai
Secretary of Higher Education
Maryland Higher Education Commission
6 N. Liberty Street, 10th Floor
Baltimore, MD 21201

Dear Dr. Rai,

Salisbury University (SU) is requesting the Maryland Higher Education Commission's approval to add a new academic program – Bachelor of Science in Coastal Engineering.

With Maryland's unique geographical position, extensive coastline, and critical need for climate resilience and environmental stewardship, this degree program is both timely and essential for addressing emerging regional and national challenges. SU is confident that this new degree will enhance our University's contributions to the state and the nation by training professionals ready to tackle the environmental and infrastructural challenges of today and tomorrow.

The complete proposal and supporting documentation for a new academic program is attached for your review.

If you have any questions, please contact my office at 410-543-6011.

Sincerely,

A handwritten signature in black ink that reads "Carolyn Lepre".

Dr. Carolyn Lepre
President

cc: Dr. Candace Caraco, Associate Vice Chancellor for Academic Affairs, USM



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

Institution Submitting Proposal	
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Each action below requires a separate proposal and cover sheet.

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

Payment Submitted:	Yes No	Payment Type:	R*STARS # Check #	Payment Amount:	Date Submitted:
Department Proposing Program					
Degree Level and Degree Type					
Title of Proposed Program					
Total Number of Credits					
Suggested Codes			HEGIS:	CIP:	
Program Modality			On-campus		Distance Education (<i>fully online</i>)
Program Resources			Using Existing Resources		Requiring New Resources
Projected Implementation Date			Fall	Spring	Summer Year:
Provide Link to Most Recent Academic Catalog			URL:		
Preferred Contact for this Proposal			Name:		
			Title:		
			Phone:		
			Email:		
President/Chief Executive			Type Name:		
			Signature: <i>Carolyn R Lyne</i>		Date:
			Date of Approval/Endorsement by Governing Board:		

Revised 1/2021

A. Centrality to Institutional Mission and Planning Priorities

1. Program Description

Maryland is blessed with thousands of miles of beautiful coastlines and wetlands that are essential to the economic health of the state. Central to this is the very heart of Maryland, the Chesapeake Bay, one of the most defining assets of the state. Its watershed spans more than 64,000 square miles and is fed by more than 150 rivers and waterways. The preservation of Maryland's environmental and economic future will be shaped by coastal engineers.

Coastal engineers contribute to the establishment of infrastructure and economic development, and design solutions for environmental protection, climate change adaptation, disaster preparedness, reclamation, and sustainability. Climate change has brought a host of weather-related challenges to coastal areas and beyond, including sea level rise, hurricanes, storm tides and high-wave events, erosion, and damage to harbors. These challenges impact the health and safety of residents, trade, recreation economies, and our delicate coastal ecosystem. Coastal engineers bring critical thinking, mathematic and scientific principles, and design and control methods to combat the negative impacts of such events. Today's coastal engineers are trained to mitigate the impacts of storm tides through wind-wave forecasting and the design of wave transformation structures and practices. Their understanding of beach dynamics, levee and harbor design, dredging processes, and erosion control through the manipulation of living shorelines, structural, and non-structural means protects the population from natural disasters and keeps tourist economies well-functioning.

The field of coastal engineering is burgeoning. With only a few academic programs across the nation, the demand for coastal engineers is projected to grow faster than average. According to data from the National Association of Colleges and Employers (NACE), a degree in coastal engineering is highly employable, offering graduates numerous opportunities in coastal and engineering related career fields. The U.S. Bureau of Labor reports an expected 8% growth in demand in the next 10 years, and expects an average of 900 openings each year in government agencies (e.g., Army Corps of Engineers, NOAA), consulting, and private firms. Even greater growth is projected in regions vulnerable to coastal hazards, like the mid-Atlantic region. As referenced in Appendix D, engineering firms across the state confirm a dire need for coastal engineers in Maryland, especially on the Eastern Shore and Chesapeake Bay regions. Edmates projects that the greatest demand nationwide in the next 10 years will be related to environmental consulting and advocacy, stormwater management, green coastal research and development, coastal and estuarine restoration, coastal construction and monitoring of coastal structures, and climate resilient infrastructure – all workforce demands that have been confirmed by engineering firms in our state. Salaries are expected to vary by educational level, but in 2023 the median pay for new coastal engineers was \$100,270 at the bachelor's level. Ten-year projections suggest that salaries of \$150,000/year will be common among starting coastal engineers within a few years.

Expecting a significant increase in demand for college graduates capable of tackling the challenges surrounding coastal infrastructure and climate change, **Salisbury University** is proposing the formation of a Coastal Engineering degree (B.S.). This innovative degree would transition an existing track in physics to a standalone degree, one of only a few in the country. Of the 66 institutions examined in the Maryland, Virginia, Delaware region, there are only four options for students interested in the topic, all of which are tracks situated within broader ocean engineering or civil engineering programs. This leaves a significant gap in the pipeline for technically trained professionals. While there are no existing bachelor degree options in the region, several coastal engineering graduate programs exist regionally and nationally. Based on Maryland's extensive coastline, lack of existing programs, and opportunities for graduates, there is a compelling opportunity for SU to leverage its strengths in sustainability and geography while filling a need for this fast-growing field.

Salisbury University is perfectly positioned to lead Maryland's education of coastal engineers. Adjacent to both the Chesapeake Bay to the west, and Maryland's five inland bays to the east, the University is geographically poised to address the unique coastal challenges and opportunities of the state. With immediate access to incredibly diverse waterways, SU is able to provide hands-on educational opportunities to students.

This distinctive degree program provides a rigorous technical background and experience to enable graduates to swiftly enter emerging roles in consulting, local, state, and federal government, and cutting-edge research. The proposed Coastal

Engineering B.S. curriculum includes foundational courses in mathematics, physics, and earth sciences, as well as specialized courses in coastal engineering. Situated within the Department of Physics, the program leverages the University's expansive expertise in geosciences, geographic information systems, physics, and engineering, while also drawing on the regional and geographic distinction of coastal Maryland.

The B.S. in Coastal Engineering provides students the fundamentals to adequately prepare for the National Council of Examiners for Engineering and Surveying (NCEES) Fundamentals of Engineering (FE) exam, which is a prerequisite for engineering licensure. Passing the FE exam prior to graduation can lead to more early-career opportunities for advancement, and helps differentiate engineering graduates from their peers. Once completed, records are kept by the Maryland Board of Professional Engineers and are valid across all states. Passing the FE exam allows a graduate to be listed in the Maryland Board of Professional Engineers database of Engineers-in-Training (EITs), which is searchable by companies seeking an entry level engineer. Passing the FE exam verifies the graduate's aptitude for advanced engineering work and eventual professional licensure. The B.S. in Coastal Engineering will be available to students beginning in August 2025.

2. How Proposed Program Supports Institution's Strategic Goals

The B.S. Coastal Engineering program aligns with two of Salisbury University's strategic plan goals:

Goal 1: Enrich Academic Success and Student Development; Objective 1.1 – Continue to support and develop our wide range of exceptional and challenging academic programs and experiences.

Coastal engineering is an inherently interdisciplinary and challenging field, encompassing elements of civil engineering, environmental science, oceanography, and climatology. By offering this program, SU will provide students with a unique academic path of rigorous coursework and practical applications like managing coastal erosion, designing resilient coastal infrastructure, and protecting natural habitats. Students will engage in real-world problem-solving and hands-on learning through labs, field studies, and internships, enriching their educational experiences and preparing them for impactful careers in a growing field.

Goal 5: Enhance Environmental, Social and Economic Sustainability; Objective 5.1 – Serve as a leader in our region in providing educational opportunities that enhance social, environmental and economic sustainability.

The coastal engineering program positions SU as a regional leader in environmental sustainability. Through coursework focused on sustainable coastal management, students will learn how to mitigate climate change impacts, address rising sea levels, and support sustainable development along Maryland's coastlines. The program's emphasis on sustainable engineering practices aligns with the region's need for professionals who can balance ecological preservation with economic development. Graduates of this program are equipped to influence policies, design eco-friendly infrastructure, and contribute to sustainable regional growth, thereby enhancing both the environmental and economic resilience of our coastal communities.

By offering a coastal engineering degree, SU will support academic and professional growth for its students but also strengthen its role as a key contributor to environmental sustainability in Maryland and beyond.

While its administrative home will be in the Henson School of Science and Technology's Physics Department, the program utilizes a multi-disciplinary approach allowing students to pursue "a broad array of ideas and perspectives" within the field of coastal engineering as promoted in the University's mission. This approach will help students achieve excellence, envision their future as engineers, grow intellectually, and pursue career, leadership, and graduate school opportunities.

3. Brief Narrative Describing Adequate Financing of Program

The coastal engineering program incorporates mostly existing courses at SU, and will use existing faculty and their expertise to launch the new undergraduate degree, with funding coming from tuition and course fees. As the B.S. Coastal Engineering program grows, new resources will be required for program's success. As our first cohort of students near completion of the program, it is expected that two additional faculty members, each with expertise in coastal engineering, will be required; however, the program will monitor the rate of growth to determine if and when those positions are needed. SU's faculty will largely be able to offer the courses as part of their regular teaching load; therefore, no additional administrative support or increased funding will be needed at the start of the program. Like all programs, students in coastal engineering will be supported by SU's Academic Advising Center, which is expected to manage the additional student load. If the program grows significantly, more advising support would be necessary, and faculty may advise advanced students.

As the program continues to grow, we may need additional field equipment and space to support hands-on laboratory experiences. With the completion of Blackwell Hall, we expect on-campus space to become available, reducing any potential limitations if further space is needed. The program also will utilize internships with local engineering firms to provide hands-on training for our students. These partnerships will not require resources; however, several firms have expressed that they may be able to provide paid internships in support of our students and program.

4. Commitment to Adequate Continued Support

The program is expected to attract a new set of students who are interested in coastal engineering and pursuing careers which require engineering licensure. The uniqueness of the program will draw students from across the state and beyond. SU is committed to providing additional administrative, financial, and technical support to match the increase in student demand, and advanced computing, equipment, and space needs will be provided in support of the program as needed.

The SU Libraries, the SU Math Emporium and Physics Help Desk will provide academic support for students in the program. The Physics Department has several labs for courses, as well as research space that can be used for students and faculty alike in the program.

The University has established administrative structures to support the program, as demonstrated by SU's thorough vetting and approval process involving the Program Director, Chair of the Department, Henson School Curriculum Committee, Undergraduate Curriculum Committee, Dean of the Henson School, and the Provost. We pledge to provide the appropriate support to enable all students enrolled in the program to complete their degree. The University has implemented a robust framework to ensure continued support for the academic program, including enhanced resources, dedicated mentorship, and regular feedback mechanisms.

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

1 and 2. Demonstrate Demand and Need for the Program and Consistency with the Maryland State Plan for Postsecondary Education

Coastal engineering is a fast-growing field that responds to critical economic and environmental demands facing our society. In alignment with the State Plan for Postsecondary Education, this program is responsive to the changing needs of the workforce and promotes innovation as it prepares our students to become leaders addressing environmental challenges of the coming years. Locally, the Maryland Coastal Bays watershed alone contributes more than \$1.2 billion in annual economic activity and more than 50,000 jobs each year. Coastal tourism at Maryland's beaches is thought to have a total economic impact of more than \$30.3 billion annually for the state. Even more significant is the economic driver of the Chesapeake Bay. A 2014 study from the Chesapeake Bay Foundation attributes \$107 billion in economic impact is created by the Chesapeake Bay, with billions of dollars more that could be gained or lost depending on the health and sustainment of our watershed,

To protect these critical resources for the future of Maryland, and with the Maryland Transportation Authority considering the replacement of the Chesapeake Bay Bridge with two new and wider bridges, a steady supply of well-trained coastal engineers will be an absolute requirement. SU's coastal engineering program demonstrates further alignment with the State Plan, which sets a goals of connecting Marylanders to jobs, creating a competitive economy, and making Maryland the greenest state in the country.

The Eastern Shore of Maryland, in particular, with its extensive coastline and vulnerable ecosystems, is in urgent need of skilled professionals to address challenges such as erosion, sea-level rise, and increased storm intensity. As of the date of this proposal, there are numerous coastal engineering job opportunities available: 142 on LinkedIn, 413 on ZipRecruiter, 78 on Indeed, 344 on SimplyHired, and 83 on Glassdoor. This underscores the growing demand for expertise in this field and highlights the necessity of a robust coastal engineering program to prepare students for these roles.

The State expects its postsecondary institutions to "update academic programs to meet industry needs and ensure a quality workforce," as indicated in Goal #1, Priority #5 of the 2022 Maryland State Plan for Higher Education. The B.S. Coastal Engineering degree will advance this goal by providing a unique high-quality program that meets "occupational and professional needs relative to upgrading vocational/technical skills or meeting job market requirements." As previously reference, several firms on the Eastern Shore and beyond have documented this need and expressed their support for the program (see Appendix D). The program prepares students to be effective engineers who can be competitive in an area of expanding demand.

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

Data USA and a recent report by the National Academies Press ([1 National Importance of Coastal Engineering | Meeting Research and Education Needs in Coastal Engineering | The National Academies Press](#)) estimates that there are fewer than 200 bachelor's level graduates in coastal or ocean engineering each year.

According to the Maryland Department of Labor and the U.S. Bureau of Labor Statistics occupational projections, growth in jobs closely related to coastal engineering is expected to rise considerably at both the state and national level by 2033.

Maryland Department of Labor: Maryland Long Term Occupational Projections (2022-2032)		
Title	Projected Change	Projected Annual Openings
Environmental Engineer	10.7%	693
Environmental Science & Protection	10.8%	832
Environmental Scientists & Specialist	11.9%	2,591
Marine Engineering & Naval Architecture	3%	446
Urban & Regional Planners	9%	871

U.S. Bureau of Labor Statistics: Occupational Outlook Handbook (2023-2033)		
Title	Projected Change	Projected Annual Openings
Environmental Engineer	7%	44,200
Environmental Science & Protection	7%	36,300
Environmental Scientists & Specialist	7%	90,700
Marine Engineering & Naval Architecture	8%	10,900
Urban & Regional Planners	4%	47,200

In Maryland and beyond, there is a general shortage of engineers, and coastal engineers (who are trained in basic engineering principles as well as coastal-specific applications), can fill jobs outside of the coastal engineering demand, as well. Upon graduation, a student with this major will be able to apply for both entry-level engineer or coastal engineering positions. Approximately 40% of the jobs listed seeking “engineering” ask for a bachelor’s degree as a requirement. The remaining 60% generally require an advanced degree or “a bachelor’s degree plus equivalent work experience.” There is also significant overlap between coastal engineering and military occupational classifications. According to the U.S. Bureau of Labor Statistics, marine/coastal engineering is a skillset of 35 military titles.

D. Reasonableness of program duplication

We find no evidence of program duplication at the state or regional level. Salisbury University is one of only two USM institutions that serve the residents of the Eastern Shore of Maryland and the other, the University of Maryland Eastern Shore, does not offer an undergraduate degree in coastal engineering. Additionally, coastal engineering is not a degree title shared by any institution of higher education, public or private, in the State of Maryland. The CIP Code tied to this proposal (14.2401) for “Ocean Engineering” is also not a code used by any institution of higher education, public or private, in the State of Maryland.

E. Relevance to High-demand Programs at Historically Black Institutions (HBIs)

There are no HBIs in Maryland that offer an undergraduate degree in coastal engineering, or use the same CIP Code as this proposal. As such, while Salisbury University believes this is a high-demand program for the State of Maryland and its workforce needs, it does not believe coastal engineering is a high-demand program for HBIs specifically. In cases where HBIs in the state are offering engineering programs, they have focused on mechanical, aerospace, or general civil engineering specialties. None have specific coursework in coastal, ocean, or maritime engineering, the closest to our proposed program.

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

There are no HBIs in Maryland that offer an undergraduate degree in coastal engineering, or use the same CIP Code as this proposal, which suggests there is not a clear, unique relevance of this program to the identity of our state's HBIs. Additionally, there are not any HBIs in neighboring states across the mid-Atlantic with an undergraduate program in coastal engineering, further suggesting the program does not have particular significant relevance to the identity of HBIs beyond the State of Maryland.

G. Adequacy of curriculum design and delivery to related learning outcomes

1. How the Proposed Program was Established; Faculty Oversight

A full course listing with course titles and descriptions is provided in Appendix A. These courses were chosen by the faculty in the Department of Physics to address stated needs of industry partners in coastal engineering. The unique design of this program combines a breadth of knowledge developed from a group of fundamental and specialized coastal engineering courses combined with courses in mathematics, physics, and other science disciplines. By integrating the specific science disciplines, students in the program will better develop an array of critical thinking, communication, and leadership aptitudes that are broadly applicable in a rapidly changing technological environment and interdependent society.

The Coastal Engineering program will be housed in the Henson School of Science and Technology's Physics Department and will generally be managed by the Physics Department's Engineering Coordinator. The chairs of departments with course offerings in the coastal engineering curriculum will be consulted as necessary: Dr. Matthew Bailey, Physics; Dr. Stephen Habay, Chemistry; Dr. Veera Holdai, Mathematics; Dr. Dan Harris, Geography and Geosciences. The B.S. Coastal Engineering program requires 43 credits of general education courses, 15 of which are fulfilled in the core courses, 59 credits of engineering core courses, 27 credits of required major courses, and 6 credits of electives.

2. Educational Objectives and Learning Outcomes

The B.S. Coastal Engineering program follows a student-centered learning approach that is the hallmark of Salisbury University and focuses on principles, models and techniques that engineers use to perform their jobs effectively and support a broad array of applications.

Program objectives for graduates of the B.S. in Coastal Engineering are: 1) demonstrate the knowledge and skills central to the field of coastal engineering; 2) use formal techniques and methodologies of abstraction to create methods to solve real-world problems; 3) apply acquired knowledge to cross-disciplinary problems as part of a project team; and 4) effectively and competitively pursue careers to meet the growing demand for engineers.

3. Assessment and Documentation of Student Learning Outcomes

Course- and program-level outcomes will be reviewed annually for effectiveness using objective criteria. SU's University Analysis, Reporting and Assessment (UARA) provides official student data and facilitates the collection and presentation of data for Academic Program Reports (APR) on a seven-year cycle. These APRs formalize the assessment of student learning outcomes to drive programmatic decision-making. At the end of each academic year, the program will assess the extent to which learning outcomes are achieved by each student in the program. Modifications to classes or other adjustments may be made in response to areas where learning outcomes are not consistently achieved.

4. List of Courses with Credit Hours and Course Descriptions

Summary of Overall Credits to Degree

General education (not fulfilled by major) – 28 credits

Engineering core – 59 credits

Coastal Engineering Major – 27 credits

Electives – 6 credits

Curriculum:

Engineering Core Courses (Required courses include the following - see Appendix A for course descriptions).

CHEM 121 – General Chemistry I (4)
ENGR 100 – Introduction to Engineering Design (3)
ENGR 110 – Statics (3)
ENGR 220 – Mechanics of Materials (3)
ENGR 221 – Dynamics (3)
ENGR 232 – Thermodynamics (3)
ENGR 331 – Fluid Mechanics (3)
ENGR 480 – Fundamentals of Engineering Review (2)
ENGR 490 – Research in Engineering (3)
MATH 201 – Calculus I (4)
MATH 202 – Calculus II (4)
MATH 310 – Calculus III (4)
MATH 306 – Linear Algebra (4)
MATH 311 – Differential Equations I (4)
PHYS 221 – Physics I (4)
PHYS 223 – Physics II (4)
PHYS 225 – Physics III (3)
PHYS 470 – Senior Seminar (1)

Coastal Engineering Major Courses (Required courses include the following - see Appendix A for course descriptions).

ENGR 306 – Introduction to MATLAB (1)
ENGR 411 – Introduction to Coastal Engineering (3)
ENGR 412 – Coastal Structures and Beach Nourishment (3)
ENGR 413 – Coastal Renewable Energies (3)
ENGR 414 – Field Methods and Coastal Modeling (3)
GEOG 111 – Introduction to Oceans and Coasts (3)
GEOG 311 – Coastal Processes (3)
GEOL 103 – Introduction to Physical Geology (4)
GEOL 211 – Sediment Analysis (1)
GEOL 322 – Geological Oceanography (3)

Total Credits (Core + Major) _____ 86 credit hours

General Education Courses

SU Signature Outcomes: Must complete at least 3 credits in each of the following areas:

· Civic and Community Engagement

- Diversity and Inclusion
- Environmental Sustainability

First Year Seminar: Academic preparation, skills and expectations for educational and professional success through exploration of a topic or issue. SLOs: Critical Thinking and Reasoning, Effective Reading, Information Literacy, Oral Communication, Written Communication, Intellectual Curiosity

Communicating Through Writing: Effective reading, writing, and information usage. SLOs: Effective Reading, Information Literacy, Written Communication

Quantitative Analysis: Numerical, analytical, statistical, and problem-solving skills. Fulfilled by Major SLOs: Quantitative Reasoning

Human Expression: Exploration of the different ways individuals and societies have and continue to express themselves and communicate the human experience. SLOs: Knowledge of Human Experience, Intellectual Curiosity, Ethical Reasoning

Humanity in Context: Critical and comparative analysis of humanity, emphasizing the role of history, culture, and/or language in human issues. SLOs: Critical Thinking and Reasoning, Understanding the Human World, Effective Reading, Knowledge of Human Experience, Intercultural Competence

Social Configurations: Quantitative and/or qualitative analysis of human behavior and/or societies. SLOs: Understanding the Human World, Knowledge of Human Experience, Emerging and Enduring Global Issues, Intercultural Competence

Social Issues: Applied social science, with an emphasis on understanding and solving problems in the social or behavioral sciences. SLOs: Quantitative Reasoning, Knowledge of Human Experience, Emerging and Enduring Global Issues, Ethical Reasoning

Hands-on Science: Experiential laboratory-based science. Fulfilled by Major SLOs: Quantitative Reasoning, Scientific Reasoning, Knowledge of the Physical World

Solutions Through Science: Applied science, with an emphasis on understanding and solving problems in the natural, physical, and technological sciences (may or may not include a lab). Fulfilled by Major SLOs: Critical Thinking & Reasoning, Quantitative Reasoning, Scientific Reasoning

Personal Wellness: Interconnected dimensions of wellness, including physical, emotional, and financial, to live a healthy, successful life. SLOs: Personal Health and Wellness

Experiential Learning: Apply knowledge and competencies from General Education through internship, study abroad/away, research, senior project, or other relevant experience. Fulfilled by Major SLOs: Critical Thinking and Reasoning, Information Literacy, Oral Communication, Written Communication, Ethical Reasoning, Intellectual Curiosity

Total Credits _____ 43 credit hours

5. Specialized accreditation or graduate certification requirements

There are no specialized accreditation or graduate certification requirements for this program. However, it is possible to seek accreditation from ABET once the first cohort of students successfully completes the program. We plan to seek this accreditation in the future.

6. Contracting with another institution or non-collegiate organization

There are no contracts with other institutions or organizations. Once the program is established, we plan to explore preferred pathway MOUs to graduate programs with institutions that have coastal or civil engineering masters or doctoral programs.

7. Assurance that SU provides clear, complete and timely information to students

Salisbury University, the Henson School, and the Physics Department are committed to and will provide clear, complete and timely information pertinent to all coastal engineering students through official communication channels. Upon approval, the program's academic requirements are clearly articulated on designated program pages that are located with the university's catalog. Each undergraduate program provides students with a Curriculum Guide, a suggested 4-year course of study that is easily accessible within the program page (see Appendix B). Students will have access to degree audits that are located in their student portal within Peoplesoft. Additionally, students will have access to professional academic advisors who will support the student in academic support.

Each course offered within the program will provide the student with a syllabus that outlines the expectations for faculty/student interaction, technical equipment requirements, and the learning management system. In addition, approval of the program will be communicated in a timely manner to the appropriate offices on campus. Information regarding financial aid resources and cost of payments policies are clearly communicated on the Accounts Receivable & Cashiers Office and Office of Financial Aid & Scholarships' webpages.

The Academic Advising Center prepares all advisors to assist incoming students with all academic programs; furthermore, the Academic Advising Center dedicates one of their advisors as a liaison to the Department of Physics, the home of the proposed degree. Our catalog and website make available all pertinent information to prospective and current students regarding academic and student support, SU's learning management system, financial aid resources and costs and payment policies.

Before any program opens for admission, SU updates all curricular, course and degree requirements in our catalog and online (in both narrative and checklist formats). The Academic Advising Center prepares all advisors to assist incoming students with all academic programs; furthermore, the Academic Advising Center dedicates one of their advisors as a liaison to the Department of Physics, the home of the proposed degree. Our catalog and website make available all pertinent information to prospective and current students regarding academic and student support, SU's learning management system, financial aid resources and costs and payment policies.

8. Assurance that advertising, recruiting and admission material are clear and accurate

All publications, including marketing, catalog and website admissions pages are vetted by the Marketing and Communications Department at SU, which fact-checks all submissions. Digital marketing, which will be a main strategy for marketing this program, also will rely on the presentation of facts and stories that are concise and accurate.

H. Adequacy of Articulation

Once the new program in coastal engineering is approved, Salisbury University will move forward with the execution of an articulation agreement (See Appendix C).

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

1. Narrative of Faculty Demonstrating Quality of Program Faculty

The science, mathematics, and engineering courses will be taught by SU's faculty from the Henson School of Science and Technology. Collectively, these faculty have decades of experience teaching undergraduates.

Table of Faculty Resources. (note: all faculty are regular state employees, not contractual)

	Faculty Member	Terminal Degree	Field	Degree-granting Institution	Academic Rank	Full-or Part-Time	Courses overseen
Chemistry	Stephen Habay	Ph.D.	Chemistry	Univ of Pittsburgh	Professor and Chair of Chemistry	FT	CHEM 121
Geography and Geosciences	Daniel Harris	Ph.D.	Geoscience Education	Univ of Maryland College Park	Associate Professor and Chair of Geography/ Geosciences	FT	All GEOG and GEOL courses
Mathematics	Veera Holdai	Ph.D.	Mathematics and Statistics	Wayne State Univ	Professor and Chair of Mathematics	FT	All MATH courses
Physics	Matthew Bailey	Ph.D.	Physics	Utah State Univ	Associate Professor and Chair of Physics	FT	All ENGR and PHYS courses
Physics	Mark W. Muller	Ph.D.	Mechanical Engineering (Grad. Cert. Coastal Engineering)	Univ of Hawai'i (Old Dominion Univ)	Professor	FT	Program Coordinator

2. Demonstrate Pedagogical Training for Faculty

The [Center for the Advancement of Faculty Excellence](#) (CAFE) supports faculty in the areas of teaching, research, professional development and personal wellness and the office of [Instructional Design & Delivery](#) (ID&D) provides professional development for effective pedagogical practices and instructional support for faculty engaged in teaching and learning of online, hybrid and traditional courses. Collaboratively, these offices provide various webinars, workshops, faculty learning communities and initiatives around andragogical and pedagogical best practices (such as Universal Design for Learning; Diversity, Equity & Inclusion; High Impact Practices; Problem-Based Learning; Open Pedagogy, Open Educational Resources, etc.). Additional opportunities are provided through the Faculty Development Committee and our Faculty Learning Communities such as the Distance Education FLC and the Scholarship of Teaching and Learning FLC. Finally, the institution hosts two annual faculty development events – one in August at the beginning of the semester (our most recent focused on Effective Teaching Strategies) and a Teaching & Learning conference in the Spring where faculty present on evidence-based practices and their experiences at SU. ID&D provides support for the campus learning management system (Canvas) and other instructional software (such as lecture capture, audience response systems) through workshops, video tips, and how-to instructions

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

Salisbury University Libraries have existing resources to support the new Coastal Engineering major. In relation to journal and newspaper articles, SU has a number of relevant titles through electronic access via our online database subscriptions, including (but not limited to): Academic Search Complete; Business Source Premier; EconLit; JSTOR; ProQuest Newspapers; Science Direct; and Web of Science. In regard to monographic titles, SU has a significant number of titles that would support this major and is frequently adding more. In regard to monographic titles, SU has a significant number of titles that would support this major and is frequently adding more. SU's online catalog provides direct access and borrowing privileges to approximately eleven million items in the libraries of the University System of Maryland and Affiliated Institution libraries (USMAI). In sum, no new library resources are directly required to support the new program. Active and ongoing communication from faculty teaching these courses regarding relevant resources is strongly recommended, with particular emphasis placed on areas of curricular focus along with information regarding newly released titles. In sum, no new library resources are directly required to support the Coastal Engineering major.

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

Currently, SU can deliver the program in our existing space and with the current equipment resources. We anticipate approximately 8 students will enroll in the program in its first year, 10 new students in Year 2, and 15 new students a year going forward, yielding a total program headcount at maturity of about 45 students, with about 9 graduates per year. We predict an 82% first year retention rate,

equivalent to the industry average for engineering programs. At that rate of growth, we would need additional adjunct/contractual teaching support in Years 2 and 3 and then 1 additional professor in Year 4 to handle the volume of students. This will allow SU to maintain the ratio of about 30 students per full-time faculty member. SU is committed to upgrading facilities and equipment when the program has established its intended growth.

SU has an institutional electronic mailing system. All students and faculty are given an SU email to utilize for all university correspondence. The university's IT HelpDesk provides technical support to students who need assistance accessing e-mail.

Instructional Design & Delivery provides support for the campus supported learning management system (Canvas) and other instructional software (such as lecture capture, audience response system) through various methods (e.g. workshops, video tips, how-to instructions).

Salisbury University's Department of Physics and Department of Geography and Geosciences have adequate laboratory facilities to support the new program. This includes wet and dry labs on the 1st and 3rd floor of Henson Science Hall, a coastal processes and geology research lab in the basement of Devilbiss Hall, and field experience launch spaces at the Nanticoke River Center.



L. Adequacy of Financial Resources as outlined in COMAR 13B.02.03.14.

TABLE 1: RESOURCES for the Coastal Engineering B.S. at Salisbury University

Resources Categories	(Year 1 - FY25)	(Year 2 - FY26)	(Year 3 - FY27)	(Year 4 - FY28)	(Year 5 - FY29)
1.Reallocated Funds	\$0	\$0	\$0	\$0	\$0
2. Tuition/Fee Revenue (c+g below)	\$85,104	\$184,467	\$317,062	\$447,567	\$514,100
a. #F.T. Students	8	17	28	39	44
b. Annual Tuition/Fee Rate (FY23 Resident rate)*	\$10,638	\$10,851	\$11,068	\$11,289	\$11,515
c. Annual Full Time Revenue (a x b)	\$85,104	\$184,467	\$309,904	\$440,271	\$506,660
d. # Part Time Students	0	0	1	1	1
e. Credit Hour Rate*	\$430	\$439	\$447	\$456	\$465
f. Annual Credit Hours	16	16	16	16	16
g. Total Part Time Revenue (d x e x f)	\$0	\$0	\$7,158	\$7,296	\$7,440
3. Grants, Contracts, & Other External Sources	\$0	\$0	\$0	\$0	\$0
4. Other Sources	\$0	\$0	\$0	\$0	\$0
TOTAL (Add 1 - 4)	\$85,104	\$184,467	\$317,062	\$447,567	\$514,100

*Figured with a 2% Annual Increase

TABLE 2: EXPENDITURES – for the Coastal Engineering B.S. at Salisbury University

Expenditure Categories	(Year 1 - FY25)	(Year 2 - FY26)	(Year 3 - FY27)	(Year 4 - FY28)	(Year 5 - FY29)
1. Total Faculty Expenses (b + c below)	\$34,949	\$75,753	\$135,193	\$188,893	\$216,315
a. # FTE	0.2	0.5	0.9	1.2	1.4
b. Total Salary (plus 2% increase each year)	\$26,278	\$56,957	\$101,649	\$142,025	\$162,643
c. Total Benefits (33% of salary)	\$8,672	\$18,796	\$33,544	\$46,868	\$53,672
2. Total Administrative Staff Expenses (b + c below)	\$19,950	\$20,349	\$20,756	\$21,171	\$21,595
a. # FTE	0.125	0.125	0.125	0.125	0.125
b. Total Salary	\$15,000	\$15,300	\$15,606	\$15,918	\$16,236
c. Total Benefits	\$4,950	\$5,049	\$5,150	\$5,253	\$5,358
3. Total Support Staff Expenses (b + c below)	\$3,192	\$6,919	\$12,038	\$16,937	\$19,435
a. # FTE	0.05	0.11	0.19	0.27	0.30
b. Total Salary	\$2,400	\$5,202	\$9,051	\$12,734	\$14,613
c. Total Benefits	\$792	\$1,717	\$2,987	\$4,202	\$4,822
4. Equipment	\$0	\$80,000	\$0	\$0	\$0
5. Library	\$0	\$0	\$0	\$0	\$0
6. New or Renovated Space	\$0	\$0	\$0	\$0	\$0
7. Other Expenses	\$0	\$0	\$0	\$0	\$0
TOTAL (Add 1 - 7)	\$58,091	\$183,021	\$167,987	\$227,001	\$257,345

M. Adequacy of provisions for evaluation of program as outlined in COMAR 13B.02.03.15.

The Henson School of Science and Technology has a long tradition of assessment and accreditation. Within the Henson School's Departments of Mathematics and Computer Science, Biological Sciences, Geography and Geosciences, Chemistry, and Physics, all faculty members are evaluated every year by their department chairs and degree programs undergo comprehensive review every 7 years. With guidance from the SU's Office of University Analysis, Reporting, and Assessment, course and program-based assessments are being developed at the start. Thus, the curriculum, program faculty and other resources, and student learning outcomes will be routinely evaluated through the annual and periodic review assessment cycles. In addition, once the B.S. Coastal Engineering program is launched, the program and courses will be evaluated using student surveys and program committee reviews on a regular basis. The program plans to see ABET accreditation after its initial launch which will require continuous assessment and evaluation.

N. Consistency with the State's minority student achievement goals as outlined in COMAR 13B.02.03.05 and in the State Plan for Postsecondary Education.

Any student meeting the SU admissions requirements can choose to pursue the B.S. in Coastal Engineering. The program will work to help all accepted students improve their workplace competitiveness and reach their professional goals; an aim consistent with the State's minority student achievement goals. In support of this goal, SU focuses campus efforts to promote inclusion, diversity, opportunity, and equity, and the cultivation of a sense of belonging. Recruiting a more racially diverse class, both at the undergraduate and graduate levels, is important for SU's student body to better represent the population within Maryland. We plan to measure our progress toward these goals through enrollment and retention analyses for matriculated students.

More specifically, Priority 6 of the 2022 Maryland State Plan for Higher Education calls on universities to improve systems that prevent timely completion of an academic program. We have already positively communicated with several Maryland community colleges about the potential for developing articulation agreements between their pre-engineering transfer programs and our B.S. Coastal Engineering program. In fact, the agreement already in place with Wor-Wic Community College will form the base document upon which these agreements can be drawn up quite quickly. Guided and facilitated by the Transfer with Success Act, these articulation agreements will certainly improve student degree completion for minority students and majority students alike.

O. Relationship to low productivity programs identified by the Commission:

The proposed program is not directly related to an identified low productivity program.

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

No distance learning is proposed at this time.

Appendix A

B.S. Coastal Engineering - Salisbury University Course Descriptions

Major Courses

CHEM 121 - GENERAL CHEMISTRY I (4 credit hours)

Study of fundamental laws of chemistry and atomic structure emphasizing quantitative relationships.

Prerequisite: Two years high school algebra and chemistry, or CHEM 100. Three hours lecture, one three-hour laboratory per week. Prerequisites: This course assumes an understanding of high school chemistry and algebra.

ENGR 100 - INTRODUCTION TO ENGINEERING DESIGN (3 credit hours)

Introduction to the art and science of engineering design. Students work in teams to design, manufacture, assemble and test a product. Examples of products include a postal scale, solar cooker and human-powered water pumping systems. CAD and modeling software will also be used.

Four hours lecture/ activity per week. Pre or Corequisites ENGL 103 and either PHYS 121 or PHYS 221.

ENGR 110 - STATICS (3 credit hours)

The equilibrium of stationary bodies under the influence of various kinds of forces. Forces, moments, couples, equilibrium, trusses, frames and machines, centroids, moment of inertia, beams and friction. Vector and scalar methods used to solve problems. Prerequisite: PHYS 221. Prerequisite/Corequisite: MATH 202. Three hours per week.

ENGR 220 - MECHANICS OF MATERIALS (3 credit hours)

Study stress and deformation of beams, shafts, columns, tanks and other structural, machine and vehicle members. Topics include stress transformation using Mohr's circle, centroids and moments of inertia, shear and bending moment diagrams, derivation of elastic curves, and Euler's buckling formula. Complete design project related to the material.

Three hours per week. Prerequisites: ENGR 110, MATH 202.

ENGR 221 – DYNAMICS (3 credit hours)

Systems of heavy particles and rigid bodies at rest and in motion. Force acceleration, work energy and impulse momentum relationships. Motion of one body relative to another in a plane and in space.

Three hours per week. Prerequisites: ENGR 110, MATH 202.

ENGR 232 – THERMODYNAMICS (3 credit hours)

Introduction to the principles of thermodynamics and thermodynamic properties of matter. Topics include the first and second laws of thermodynamics, heat, work, temperature, entropy, enthalpy, cycles, reactions, mixtures, energy balances, and mass balances. A design project related to the material is given.

Three hours per week. Prerequisites: C or better in ENGR 110, MATH 202, PHYS 225.

ENGR 306 - INTRODUCTION TO MATLAB (1 credit hour)

Prepares physics and engineering students for subsequent courses requiring computation with MATLAB. Covers the basics of MATLAB, including simple commands, variables, solving equations, graphing differentiation and integration, matrices and vectors, functions, M-files and fundamentals of programming in the MATLAB environment.

One hour per week. Prerequisites: C or better in MATH 202.

ENGR 331 - FLUID MECHANICS (3 credit hours)

Introduction to the principles of fluid mechanics. Topics include mass, momentum and energy conservation, hydrostatics, control volume analysis, internal and external flow, boundary layers, and modern measurement techniques. A design project related to the material is given.

Four hours lecture/activity per week. Prerequisites: C or better in ENGR 221, MATH 310 and PHYS 225.

ENGR 411 - INTRODUCTION TO COASTAL ENGINEERING (3 credit hours)

Topics include the physical and mathematical fundamentals of ocean wave behavior; mechanics of wave motion; wave refraction, diffraction and reflection; wave forecasting; shore processes; planning of coastal engineering projects; design of seawalls, breakwaters, beach nourishment, and fixed and floating installations; dredging; sea-level rise; coastal transport processes; and risk analysis. Three hours per week. Prerequisites: C or better in GEOG 311, PHYS 225.

ENGR 412 – COASTAL STRUCTURES AND BEACH NOURISHMENT (3 credit hours)

This course examines the elements of beach nourishment and coastal structures including cross-shore and planform design considerations. Topics include dredging, borrow areas (upland, offshore and inlets), environmental and recreational effects of beach nourishment. Students will learn about the functional design of coastal structures distinguishing between groins, jetties, seawalls, breakwaters, revetments and bulkheads. Sediment and structural stability as a result of breaking and non-breaking wave loading are also covered.

Three hours per week. Prerequisites: ENGR 411

ENGR 413 – COASTAL RENEWABLE ENERGIES (3 credit hours)

This course examines power generation from ocean waves, currents, tides, and temperature changes in coastal environments. Topics include an emphasis on the principles of operation, efficiency, environmental impact and performance of coastal renewable energy sources from an electrical engineering and thermodynamic perspective. Environmental impacts and technological limitations are also discussed.

Three hours per week. Prerequisites: ENGR 232, ENGR 411, and PHYS 311.

ENGR 414 – FIELD METHODS AND COASTAL MODELING (3 credit hours)

Introduction to the concepts, instrumentation, and field methods used to observe and computationally model physical processes specific to the highly-dynamic coastal environment, such as wind, waves, currents, tides, and sediment transport. Advanced surveying techniques for monitoring beach morphology (e.g., LIDAR, RTK

GPS, and SONAR) and advanced numerical models (e.g. ADCIRC, FUNWAVE, DELFT3D, XBeach, and ANSYS) are introduced.

Three hours per week. Prerequisites: ENGR 411

ENGR 480 - FUNDAMENTALS OF ENGINEERING REVIEW (2 credit hours)

Review of topics on the National Council of Examiners for Engineering and Surveying (NCEES) Fundamentals of Engineering (FE) exam. Students become familiar with exam topics and get hands-on problem-solving skills. All topics for the “Other Disciplines” exam specification are covered.

Two hours per week. Prerequisites: Permission of instructor.

ENGR 490 - RESEARCH IN ENGINEERING (2 credit hours)

Research project in engineering chosen, designed and carried out by student with the advice and approval of a faculty member. Actual work may be carried out at off-campus sites. Written report, seminar presentation required. Prerequisites: PHYS 470, 40 credits of physics/engineering (or senior standing), department chair approval. Six hours per week.

GEOG 111 - INTRODUCTION TO OCEANS AND COASTS (3 credit hours)

The study of coastlines, coastal landforms, and the tectonic and oceanographic forces that shape them. One mandatory Saturday half-day field trip to Assateague Island is required. Three hours per week.

GEOG 311 - COASTAL PROCESSES (3 credit hours)

Introduces more advanced concepts related to coastal dynamics, with an emphasis on real-world practical applications. Learn how to gather field data and compile it into professional reports. Two mandatory Saturday half-day field trips are required. Two hours lecture, two hours lab per week. Prerequisites: GEOG 111. Pre or Corequisites: GEOL 211

GEOL 103 - INTRODUCTION TO PHYSICAL GEOLOGY (4 credit hours)

Introduction to the nature and character of the Earth’s crust and the geological processes that generate and shape landform features. Topics include minerals, rocks, earth structure and plate tectonics, geological processes and associated landforms. Three hours lecture, two hours laboratory per week.

GEOL 211 - SEDIMENT ANALYSIS (1 credit hour)

Lab-based course designed to introduce students to the most common methodologies field scientists use to measure, analyze and classify sediments. Two hours laboratory per week.

Pre or Corequisites: GEOL 103 or permission of instructor.

GEOL 322 - GEOLOGICAL OCEANOGRAPHY (3 credit hours)

Explore the major features of the ocean basins and seafloor as well as the processes responsible for their formation. Discuss geological and geophysical techniques for mapping and understanding these processes.

Three hours per week. Prerequisites: GEOG 111.

MATH 201: CALCULUS I (4 credit hours)

Introduction to analytic geometry, limits, continuity, derivatives of elementary functions, applications of the derivatives. May not receive credit for both MATH 198 and MATH 201. Prerequisite: MATH 140 or equivalent. Four hours per week.

MATH 202 - CALCULUS II (4 credit hours)

Introduction to integrals, infinite series, applications and techniques of integration. Four hours per week. Prerequisites: C or better in MATH 198 or MATH 201 or equivalent.

MATH 306 - LINEAR ALGEBRA (4 credit hours)

Basic concepts of linear algebra: linear equations and matrices, vector spaces and subspaces, similar matrices, basis and dimension, linear transformations, eigenvalues, determinants, orthogonality, coordinate systems, and applications to geometry. Four hours per week. Prerequisites: C or better in MATH 202.

MATH 310 - CALCULUS III (4 credit hours)

Arc length, indeterminate forms, Euclidean spaces, functions of several variables, partial differentiation, multiple integrals. Four hours per week. Prerequisites: C or better in MATH 202.

MATH 311 - DIFFERENTIAL EQUATIONS I (4 credit hours)

Solutions of first and second order equations and their applications: separable, exact, homogeneous, linear. Numerical and series solutions of ordinary and partial differential equations. Four hours per week. Prerequisites: C or better in MATH 202.

PHYS 221 - PHYSICS I (4 credit hours)

Introduction to calculus-based Newtonian mechanics for students majoring in physics, engineering and chemistry. Prerequisite or Corequisite: MATH 201. Six hours lecture/activity per week.

PHYS 223 - PHYSICS II (4 credit hours)

Continuation of introductory physics. Topics include: electrostatics, current and resistance, DC and AC circuit analysis, magnetic fields, induction, electromagnetic waves and geometrical and wave optics. Six hours lecture/ activity per week. Prerequisites: PHYS 221. Pre or Corequisites: MATH 202.

PHYS 225 - PHYSICS III (3 credit hours)

Continuation of introductory calculus-based physics. Topics include: static equilibrium and elasticity, fluid mechanics, wave motion and thermodynamics. Four hours lecture/ activity per week. Prerequisites: PHYS 221. Pre or Corequisites: MATH 202.

PHYS 470 - SENIOR SEMINAR (1 credit hour)

Senior seminar for Physics majors. Introduction to research practices. Preparation for PHYS 475 or PHYS 490 projects. Prerequisites: 30 credits of physics and/or engineering, or department chair approval. One hour per week.

Appendix B

B.S. Coastal Engineering - Salisbury University Curriculum Guide

First Year

Fall Semester (15 credits)

PHYS 221 (4)
MATH 201 (4)
GEOG 111 (3)
First Year Seminar (4)

Spring Semester (15 credits)

PHYS 223 (4)
MATH 202 (4)
GEOL 103 (4)
ENGR 100 (3)

Second Year

Fall Semester (14 credits)

PHYS 225 (3)
MATH 310 (4)
ENGR 110 (3)
GEOG 211 (1)
Elective (3)

Spring Semester (17 credits)

MATH 311 (4)
ENGR 220 (3)
CHEM 121 (4)
GEOG 311 (3)
Elective (3)

Third Year

Fall Semester (14 credits)

Communication Through Writing (4)
MATH 306 (4)
ENGR 221 (3)
ENGR 232 (3)

Spring Semester (15 credits)

ENGR 331 (3)
ENGR 411 (3)
Humanity in Context (4)
Personal Wellness (4)
ENGR 306 (1)

Fourth Year

Fall Semester (15 credits)

PHYS 470 (1)
ENGR 412 (3)
ENGR 413 (3)
Human Expression (4)
Social Configurations (4)

Spring Semester (15 credits)

ENGR 490 (3)
ENGR 480 (2)
GEOL 322 (3)
ENGR 414 (3)
Social Issues (4)

**Appendix C
Articulation**

PROGRAM ARTICULATION AGREEMENT

Between

**Wor-Wic Community College and
Salisbury University**

**Associate of Science in STEM Transfer, Engineering Concentration to
Bachelor of Science in Coastal Engineering**

August 2025 through July 2030

This Program Articulation Agreement ("Agreement"), effective this 1st day of August 2025 ("Effective Date"), is by and between Wor-Wic Community College, a community college located in Salisbury, Maryland, and Salisbury University, a constituent institution of the University System of Maryland, an agency of the state of Maryland (hereinafter sometimes referred to individually as a "Party" or "Institution" and collectively as the "Parties" or "Institutions"). This Agreement sets forth the joint curricula and program requirements for the completion of the Associate of Science in STEM Transfer, Engineering Concentration from Wor-Wic Community College and the Bachelor of Science in Coastal Engineering at Salisbury University.

RECITALS

Whereas, Wor-Wic Community College and Salisbury University are committed to partnering to expand the educational opportunities and collaborative academic programming of their respective institutions; and
Whereas, the Institutions are committed to providing a smooth transition for students wishing to earn an associate of arts degree and a baccalaureate degree; and
Whereas, the intent of the Institutions is to avoid duplication of curricula, where appropriate, within articulated programs of studies; and
Whereas, the Institutions agree that the educational growth of students and the economic development of the community is better served through cooperative educational planning and optimal utilization of community resources.
Therefore, this Agreement commits the Parties to full support of an articulation process to deliver coursework for students, resulting in the associate of arts degree from Wor-Wic Community College and credit toward the Bachelor of Science in Coastal Engineering at Salisbury University. The Parties agree to the following:

I. ACADEMIC REQUIREMENTS

- A. The Institutions agree to follow the joint program curriculum and course by course articulation delineated in Appendix 1, which is attached hereto and made a part of this Agreement.
- B. Both Institutions will cooperate toward developing, disseminating, and presenting the articulated program information to students.

- C. Students who have graduated from Wor-Wic Community College program must first apply to Salisbury University. Once a completed application is received, Wor-Wic Community College graduates who have completed the associate's degree program in Associate of Science in STEM Transfer, Engineering Concentration, with a cumulative grade point average of 2.0 or higher will be granted admission to Salisbury University as an Coastal Engineering major.
- D. All articulated course credits applied towards satisfying Bachelor of Science in Coastal Engineering major requirements earned with a C or better will be accepted for transfer according to the articulation matrix in Appendix 1.
- E. Salisbury University shall provide a Checklist for students as a planning tool for completing coursework required for the Bachelor of Science in Coastal Engineering major in Appendix 2, attached hereto and made a part of this Agreement.
- F. Students intending to transfer are recommended to apply for admission by the priority deadline for the semester for which they intend to enroll.
- G. Students are subject to all specific policies pertaining to students admitted to the Salisbury University baccalaureate degree program in Bachelor of Science in Coastal Engineering and all other Salisbury University admissions policies and procedures.

II. TERM AND TERMINATION

- A. The term of this Agreement commences as of the Effective Date listed herein. This Agreement is based on the present curricula contained herein and in all appendices, and is effective for five (5) years from August 2025 to July 2030.
- B. Either Party may terminate this Agreement with notice to the other Party, pursuant to Section III.G below. Upon termination or expiration of this Agreement, the Parties shall develop a process that will reasonably allow students already admitted to and enrolled in joint programming to continue their studies. Neither Party will terminate this Agreement at a time that would deter a "cohort-in-progress" from completing graduation within the originally designated timeframe.

III. GENERAL PROVISIONS

- A. Each Institution is responsible for the administration of its respective courses, including content, requirements, faculty, and student services (to include, but not limited to, admissions, financial aid, class registration, etc.).
- B. When enrolled in a Salisbury University course, the student is subject to all policies and procedures applicable to Salisbury University students. When enrolled in a Wor-Wic Community College course, a student is subject to all policies and procedures applicable to Wor-Wic Community College students. Additional joint policies and procedures may be adopted and implemented at the discretion of both Parties.
- C. The Parties recognize that course scheduling beyond the associate's degree level resides exclusively with Salisbury University and will be coordinated with Wor-Wic Community College by the designated Salisbury University representative. Where academic calendars differ, the Parties will work together to coordinate class offerings and class schedules.

- D. The disclosure of information about individual students is limited by the federal Family Educational Rights and Privacy Act (FERPA). The Parties agree that release of student educational records to each other is conditioned upon the submission of a signed agreement by the student authorizing such release.
- E. The Parties agree not to release student information to any third-party without the written consent of the other Party and in compliance with FERPA and any other federal or state of Maryland laws, rules, and regulations, and policies of the Parties.
- F. The Parties shall publicize any joint offerings in their respective catalogs, website, and other materials as appropriate. Notwithstanding the foregoing, neither Party may use the names or marks of the other without the prior written approval of the other Party.
- G. The Parties shall inform students in their respective programs of the complementary program opportunities available at each other's respective institution, support each other's marketing efforts toward the same, and encourage students to apply to programs consistent with an individual student's interests.
- H. Notwithstanding anything in this Agreement to the contrary, both Parties retain full authority over their respective courses, programs, and requirements. Both Parties reserve the right to make changes to their respective courses, programs, and requirements. However, each Party shall give to the other reasonable notice and details of changes to this Agreement and other changes in its courses, programs, and requirements that may affect this Agreement. In the event such changes affect the terms of this Agreement, this Agreement and any of its appendices shall be updated as needed to reflect such changes.
- I. The Parties designate the following persons as their respective representatives to coordinate and manage the activities under this Agreement:

Wor-Wic Community College

Kristin Mallory, VP for Academic Affairs

32000 Campus Drive

Salisbury, Maryland 21804

kmallory@worwic.edu

(410) 334-2813

Salisbury University

Michael Scott, Dean

Richard A. Henson School of Science and Technology

1101 Camden Avenue

Salisbury, Maryland 21801

msscott@salisbury.edu

(410) 543-6489

- J. The designated representatives shall meet as needed, at a mutually agreeable time and location, to discuss various collaborations and other topics of interest to either Institution. A Party may change its representative by giving notice to the other Party.
- K. Either Institution may at any time recommend changes to this Agreement. Both Institutions reserve the right to modify the programs as deemed necessary and agree to inform the

appropriate representatives of the other Institution of recommended changes. This Agreement may be modified only in writing signed by both Parties.

- L. All notices under this Agreement must be in writing; delivered in person, by U.S. mail or by email to the representatives listed above in this Section III.
- M. Nothing in this Agreement is intended to form a joint venture between the Parties. Nothing in this MOU is intended to create rights or benefits for any person or entity other than the Parties.
- N. This Agreement integrates the entire agreement of the Parties and supersedes any and all prior and/or contemporaneous agreements between the Parties, written or oral, with respect to the subject matter of this Agreement.

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

Wor-Wic Community College

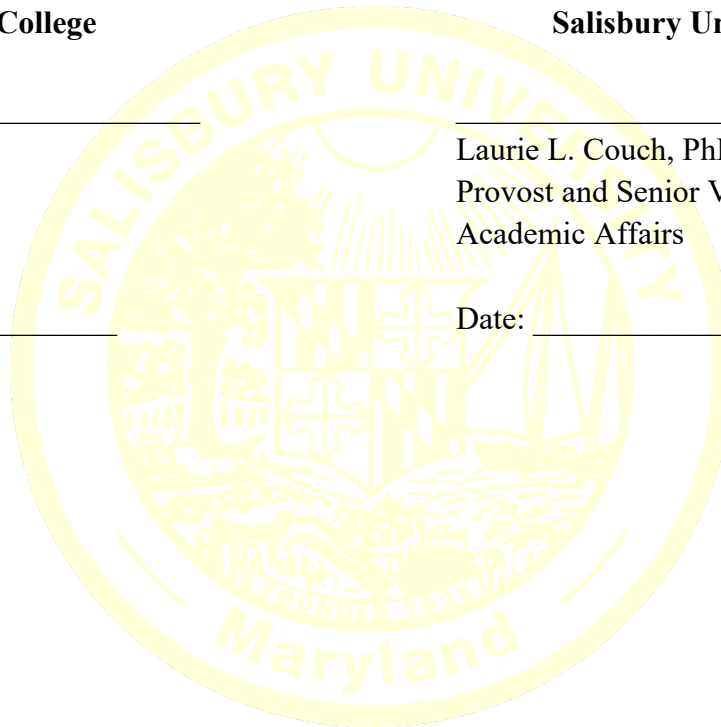
Salisbury University

Deborah Casey, PhD
President

Laurie L. Couch, PhD
Provost and Senior Vice President of
Academic Affairs

Date: _____

Date: _____



APPENDIX 1

Articulation Matrix

The following matrix includes course equivalencies, including general education requirements and courses necessary to satisfy major requirements. The matrix also includes a recommended student curricular pathway to complete the Associate of Science degree and the Bachelor of Science degree requirements.

While the student is not required to take all courses in the precise order recommended in the articulation matrix, all course equivalencies described in the matrix and the manner in which they fulfill general education and major requirements at Salisbury University are binding.

Students are strongly advised to seek appropriate advising with regard to the completion of requirements for the associate of science degree, transition to Salisbury University, and completion of all requirements for the Bachelor of Science in Coastal Engineering



WW Course Prefix	WW Course Number	WW Course Title	Credits (at WW)	GenEd at WW	SU Course Prefix	SU Course Number	SU Course Title	Credits (at SU)	GenEd at SU	SU Degree Requirements	Credits Taken by Student
ENG	101	English I	3	Composition	ENGL	103	Research	3	CTW (1 of 10)		14
MTH	201	Calculus I	4	Mathematics	MATH	201	Calculus I	4	QA (2 of 10)	MC (1 of 29)	
PHY	141#	Principles of Physics I	4	Biological/Physical Science	PHYS	221	Physics I	4	STS (3 of 10)	MC (2 of 29)	
EGR	101	Intro to Engineering Design	3		ENGR	100	Intro to Engineering Design	3		MC (3 of 29)	
ENG	151	Fundamentals of English II	3	Arts and Humanities	ENGL	LIT	English Literature Elective	3	HE (4 of 10)		17
MTH	202	Calculus II	4		MATH	202	Calculus II	4		MC (4 of 29)	
GEN	ED	Social/Behavioral Science	3	Social/Behavioral Science	GEN	ED		3	SC (5 of 10)		
PHY	142#	Principles of Physics II	4		PHYS	223	Physics II	4		MC (5 of 29)	
ELEC		General Elective	3		ELEC		TBD	3			13
CHM	105	General Chemistry I	4	al Science	CHEM	121	General Chemistry I	4	HoS (6 of 10)	MC (6 of 29)	
GEN	ED	Science	3	Science	GEN	ED		3	SI (7 of 10)		
EGR	202	Statics	3		ENGR	110	Statics	3		MC (7 of 29)	
GEN	ED	Requirement	3	Humanities	GEN	ED		3	HIC (8 of 10)		16
MTH	205	Differential Equations	4		MATH	311	Differential Equations	4		MC (8 of 29)	
MTH	203	Calculus III	4		MATH	310	Calculus III	4		MC (9 of 29)	
PHY	243#	Principles of Physics III	4		PHY	225	Principles of Physics III	4		MC (10 of 29)	
ELEC			4		ELEC			4			15
			60		GEOG	111	Introduction to Oceans and Coasts	3		MC (11 of 29)	
					GEOG	211	Sediment Analysis	1		29)	
					GEOG	103	Introduction to Physical Geology	4		MC (13 of 29)	
					ENGR	221	Dynamics	3		MC (14 of 29)	17
					ENGR	232	Thermodynamics	3		MC (15 of 29)	
							Sophomore Seminar in Physics, Astronomy, and Engineering	1		MC (16 of 29)	
					MATH	306	Linear Algebra	4		MC (17 of 29)	
					ENGR	220	Mechanics of Materials	3		MC (18 of 29)	15
					ENGR	331	Fluid Mechanics	3		MC (19 of 29)	
					ENGR	411	Introduction to Coastal Engineering	3		MC (20 of 29)	
					ENGR	306	Introduction to MATLAB	1		MC (21 of 29)	
					GEOG	311	Coastal Processes	3		MC (22 of 29)	15
					ENGR	412	Coastal Structures and Beach Nourishment	3		MC (23 of 29)	
					ENGR	413	Coastal Renewable Energies	3		MC (24 of 29)	
					PHYS	470	Senior Seminar	1		MC (25 of 29)	
					FTWL	106	Lifelong Fitness and Wellness	4	PW (9 of 10)		15
					ELEC			4			
					ENGR	480	Fundamentals of Engineering Review	2		MC (26 of 29)	
					ENGR	414	Field Methods and Coastal Modeling	3		MC (27 of 29)	
					ENGR	490	Engineering Capstone Experience	3	EL (10 of 10)	MC (28 of 29)	15
					GEOG	322	Geological Oceanography	3		MC (29 of 29)	
					ELEC			4			

Wor-Wic Community College

Salisbury University

- WWCC's PHY 141, 142, & 243 transfer as SU's PHYS 221, 223, 225 as a block

CC Credits Transferred 60
SU Credits 62

APPENDIX 2
Bachelor of Science Coastal Engineering Curriculum
Fall 2025

This Appendix 2 outlines the requirements to earn a baccalaureate degree in Coastal Engineering from Salisbury University, as of the Fall 2025 semester. It includes overall Salisbury University curriculum policies, general education requirements, major core courses, and major elective courses.

B.S. Coastal Engineering - Salisbury University
Curriculum Guide

First Year

Fall Semester (15 credits)

PHYS 221 (4)
MATH 201 (4)
GEOG 111 (3)
GENE FYS (4)

Spring Semester (15-16 credits/30-31)

PHYS 223 (4)
MATH 202 (4)
GEOL 103 (4)
GENE CTW (3-4)

Second Year

Fall Semester (15-16 credits/45-47)

PHYS 225 (3)
MATH 310 (4)
ENGR 110 (3)
GEOL 211 (1)
GENE DI (3-4)
PHYS 270 (1)

Spring Semester (16-17 credits/61-64)

MATH 311 (4)
ENGR 220 (3)
ENGR 100 (3)
GEOG 311 (3)
GENE CCE (3-4)

Third Year

Fall Semester (14 credits/75-78)

CHEM 121 (4)
MATH 306 (4)
ENGR 221 (3)
ENGR 232 (3)

Spring Semester (14-15 credits/89-93)

ENGR 331 (3)
ENGR 411 (3)
GENE HIC (3-4)
GENE PW (4)
ENGR 306 (1)

Fourth Year

Fall Semester (13-15 credits/102-108)

PHYS 470 (1)
ENGR 412 (3)
ENGR 413 (3)
GENE HE (3-4)
GENE SC (3-4)

Spring Semester (14-15 credits/116-123)

ENGR 490 (3)
ENGR 480 (2)
GEOL 322 (3)
ENGR 414 (3)
GENE SI (3-4)

Appendix D Engineering Firms – Support Letters



◆ ◆ ◆
ARCHITECTS
ENGINEERS

206 WEST MAIN STREET
SALISBURY, MD 21801
PH: 410.742.3115
PH: 800.789.4462
salisbury@gmbnet.com

SALISBURY
BALTIMORE
SEAFORD
LEWES
OCEAN VIEW

www.gmbnet.com

◆ ◆ ◆

JAMES H. WILLEY, JR., P.E.
CHARLES M. O'DONNELL, III, P.E.
A. REGGIE MARINER, JR., P.E.
JAMES C. HOAGESON, P.E.
STEPHEN L. MARSH, P.E.
DAVID A. VANDERBEEK, P.E.
ROLAND E. HOLLAND, P.E.
JASON M. LYTLE, P.E.
CHRIS B. DERBYSHIRE, P.E.
MORGAN H. HELFRICH, AIA
KATHERINE J. MCALLISTER, P.E.
W. MARK GARDOCKY, P.E.
ANDREW J. LYONS, JR., P.E.

PETER A. BOZICK, JR., P.E.
JUDY A. SCHWARTZ, P.E.
W. BRICE FOXWELL, P.E.

JOHN E. BURNSWORTH, P.E.
VINCENT A. LUCIANI, P.E.
AUTUMN J. BURNS
CHRISTOPHER J. PFEIFER, P.E.
BENJAMIN K. HEARN, P.E.

December 12, 2023

Dr. Carolyn Ringer Lepre, President
Salisbury University
1001 Camden Avenue
Salisbury, MD 21801

Re: Proposed Bachelor of Science in Coastal Engineering at Salisbury University

My name is James H. Willey, Jr., P.E., and I am the Managing Member/President of George, Miles & Buhr, LLC (GMB), headquartered in Salisbury, Maryland. We support the proposed Bachelor of Science in Coastal Engineering program at Salisbury University. This program will help meet a critical workforce need in the State, particularly on Maryland's Eastern Shore, namely engineering graduates trained to solve our client's most pressing issues related to development and environmental protection in the coastal zone.

GMB is a client-focused firm providing engineering, architectural, surveying, and coastal resiliency services across the Mid-Atlantic region. Founded in 1960, we provide quality design to enhance our communities' infrastructure and safeguard the environment. We currently employ 100 people among five offices, including Salisbury and Sparks, Maryland, as well as lower Delaware offices in Seaford, Ocean View, and Lewes. Hiring qualified engineers is a critical challenge inhibiting the growth and long-term stability of our firm. We typically have 3-5 open engineering positions, limiting our ability to respond to project demand and provide necessary client service.

Most architectural, engineering, and construction (AEC) firms are impacted by the statewide shortage of engineers. The latest statistics show 3,000+ open engineering positions in Maryland. Bureau of Labor Statistics predict 10.8% of engineering jobs remain unfilled. Maryland institutions of higher education produce about 1,600 engineering graduates per year with an unknown, but significant, percentage of those graduates leaving the state to work. With annual graduates accounting for 50% of the demand, the challenge is acute.

In 2023, we employed ten summer interns in hopes of filling permanent openings. We recruited from nearly all universities offering BS programs within 150 miles of Salisbury, as well as students matriculating as far away as Clemson University. We also regularly hire SU Physics and Earth Science majors to assist in technical areas. SU Physics graduates who are able to pass the Fundamentals of Engineering exam are a welcome addition to the local talent pool, but GMB would be better served with an ABET-accredited engineering program. We will continue our decades long support of SU by hiring students with a BS in Coastal Engineering.

GMB has historically suffered recruiting difficulties arising from the dearth of locally produced engineering talent. Our most productive and loyal employees have deep, significant connections to Maryland's Eastern Shore. The lack of an engineering program at Salisbury University specifically impacts our ability to recruit and retain needed local talent.

Thank you for the opportunity to support a program which will address a critical local workforce need. It is refreshing to see the University System of Maryland poised to initiate programs designed to boost the local economy and support the communities in which the Universities operate.

Sincerely,

James H. Willey, Jr., P.E.
Managing Member/President

G. W. C. WHITING
(1893-1974)
WILLARD HACKERMAN
(1916-2014)

TIMOTHY J. REGAN
PRESIDENT AND CEO

FOUNDED 1909

THE WHITING-TURNER CONTRACTING COMPANY

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100 WEST MAIN STREET
SALISBURY, MARYLAND 21801
410-677-3253

INSTITUTIONAL
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CORPORATE
TECHNOLOGY
INDUSTRIAL/PROCESS
INFRASTRUCTURE
SUSTAINABILITY

December 4, 2023

Dr. Carolyn Ringer Lepre, President
Salisbury University
1001 Camden Avenue
Salisbury, MD 21801

Dear Dr. Ringer Lepre:

My name is Scott Saxman and I am Division Vice President with The Whiting-Turner Contracting Company in Salisbury, Maryland. I write in support of the proposed Bachelor of Science in Coastal Engineering program at Salisbury University. This program will help fill a critical workforce need in the state of Maryland, particularly on Maryland's Eastern Shore, namely the production of graduates trained to solve some of our client's most pressing issues related to development and environmental protection in the coastal zone.

The Whiting-Turner Contracting Company is a Maryland based client-focused firm that provides comprehensive construction services across the United States. Founded in 1909, we provide quality construction services that enhance our communities and safeguard the environment. We employ over 4,000 people among our 50 office locations across the US. Hiring qualified engineers is a critical challenge that is inhibiting the growth of our firm and of the technical engineering capacity of our local area in general. At any given time, we have a variety of open positions for engineers, limiting our ability to respond to project demand.

Our engineering workforce challenge is multi-dimensional. We, like most other architectural, engineering, and construction (AEC) firms are impacted by the statewide shortage of engineers, with the latest statistics showing more than 3,000 open engineering positions in the state at any given time. The Bureau of Labor Statistics predicts that 10.8% of engineering jobs are currently unfilled. With Maryland institutions of higher education producing about 1,600 engineering graduates per year (and some significant but unknown percentage of those graduates leaving the state to find work), the challenge is acute. We regularly offer over 800 summer internships nationally and over 20 internships locally between our Salisbury and Delaware offices to students from diverse schools such as West Virginia University, Clarkson University and Virginia Tech; we look forward to supporting the BS in Coastal Engineering program at SU with internship offers as well.

Additionally, our firm feels the pinch of a near-complete lack local engineering talent. We have found that our most productive and loyal employees have deep, significant family connections to Maryland's Eastern Shore. These local ties sustain our young workforce as they start families and raise their children while becoming valuable employees at our firm. Therefore, the lack of an engineering program

WWW.WHITING-TURNER.COM



OFFICES NATIONWIDE

at Salisbury University specifically impacts our ability to recruit and retain the talent we need to be successful. We have had some success hiring and retaining local Physics graduates with Engineering coursework from SU – we look forward to that program’s faculty producing students from an ABET-accredited program that are well-prepared to pass the Fundamentals of Engineering exam.

Thank you for the opportunity to voice our support for a program that will address such a critical local workforce need. It is refreshing to see the University System of Maryland focused on bringing forth programs at its universities that are designed to boost the local economy and support the communities in which they operate.

Sincerely,
THE WHITING-TURNER CONTRACTING COMPANY

A handwritten signature in blue ink, appearing to read "Scott Saxman", written in a cursive style.

Scott Saxman
Division Vice President





ARCHITECTURE
ENGINEERING

PLANNING OUR
CLIENTS' SUCCESS

December 8, 2023

Dr. Carolyn Ringer Lepre
President
Salisbury University
1001 Camden Avenue
Salisbury, MD 21801

Re: **SU Coastal Engineering program**

Dear Dr. Lepre:

My name is W. Ronald Morgan, AIA, President of Becker Morgan Group headquartered in Salisbury, Maryland. I'm writing in support of the proposed Bachelor of Science in Coastal Engineering program at Salisbury University. This program will help fill a critical workforce need in Maryland, particularly on the Eastern Shore, where our coastal environments are facing significant challenges.

Becker Morgan Group provides comprehensive engineering, architectural, and planning services throughout the Mid-Atlantic region. Founded in 1983, we design solutions that enhance our communities and safeguard the environment, with a staff of 120 in 5 offices, in Maryland, Delaware and North Carolina. Hiring qualified engineers is a critical challenge that restricts our growth. We often have 5 open positions for engineers, impacting our ability to respond to marketplace demands.

Like most other architectural and engineering firms, we are impacted by the statewide shortage of engineers, with the latest statistics showing more than 3,000 open engineering positions in the state at any given time. We regularly offer up to 10 summer internships to students from the University of Delaware, University of Maryland, Drexel University, and Catholic University of America. We look forward to supporting the BS in Coastal Engineering program at SU with internship offers as well.

We have found that our most loyal employees have deep, significant family connections to Maryland's Eastern Shore. These local ties sustain our young workforce as they start families, raising their children while becoming valuable members of our firm. Therefore, the lack of an engineering program at Salisbury University specifically impacts our ability to recruit and retain the talent we need to be successful.

Thank you for the opportunity to voice support for a program that will address this critical local workforce need. It is refreshing to see the University System of Maryland focused on bringing forth programs at its universities that are designed to boost the local economy and support the communities in which they operate.

Sincerely,

BECKER MORGAN GROUP, INC.

W. Ronald Morgan, AIA
President

BECKER MORGAN GROUP, INC.

PORT EXCHANGE
312 WEST MAIN STREET, SUITE 300
SALISBURY, MARYLAND 21801
410.546.9100

309 SOUTH GOVERNORS AVENUE
DOVER, DELAWARE 19904
302.734.7950

THE TOWER AT STAR CAMPUS
100 DISCOVERY BOULEVARD, SUITE 102
NEWARK, DELAWARE 19713
302.369.3700

3333 JAECKLE DRIVE, SUITE 120
WILMINGTON, NORTH CAROLINA 28403
910.341.7600

www.beckermorgan.com

900.000_SU_Engineering.docx