

### UNIVERSITY OF MARYLAND EASTERN SHORE

Office of the President

March 15, 2024

Sanjay Rai, Jr., Ph.D. Acting Secretary for Higher Education Maryland Higher Education Commission 6 N. Liberty Street, 10th Floor Baltimore, Maryland 21201

RE: New Academic Program Proposal – BS in Aviation Maintenance Management

Dear Secretary Rai:

The University of Maryland Eastern Shore hereby submits a new academic program proposal for a Bachelor of Science in Aviation Maintenance Management.

The proposed BS in Aviation Maintenance Management aims to produce the next generation of leaders in aviation maintenance and offer prospective students an academic program with strong foundations in a versatile and dynamic field that blends knowledge across multiple disciplines in aviation maintenance. The program's curriculum is devised to harness faculty expertise and experience in various technical fields in the Department of Engineering and Aviation Sciences at UMES. The program, if established, will enable students to develop innovative technologies in emerging areas related to aviation that are critical to the economic development of the region and the state. If the proposal is approved, the program will be established at the Salisbury Maryland Airport, 5443 Airport Terminal Road, Salisbury, MD 21802.

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

I greatly appreciate your considering this request.

Sincerely,

Jail M anderson

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. Yuanwei Jin, Professor and Chair, Department of Engineering and Aviation Sciences

Mr. Chris Hartman, Associate Professor and Coordinator of the Aviation Sciences program



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

Institution Submitting Proposal	Submitting Proposal University of Maryland Eastern Shore			
Each action	below requires a separate proposal and cover sheet.			
New Academic Program	O Substantial Change to a Degree Program			
New Area of Concentration	O Substantial Change to an Area of Concentration			
O New Degree Level Approval	O Substantial Change to a Certificate Program			
O New Stand-Alone Certificate	O Cooperative Degree Program			
Off Campus Program	Offer Program at Regional Higher Education Center			
	*STARS # JE351049 Payment heck # JE351049 Payment Amount: \$850 Date Submitted:			
Department Proposing Program	Department of Engineering and Aviation Sciences			
Degree Level and Degree Type	Bachelor of Science			
Title of Proposed Program	Aviation Maintenance Management			
Total Number of Credits	120			
Suggested Codes	HEGIS: 051001 CIP: 49.0101			
Program Modality	On-campus O Distance Education (fully online) O Both			
Program Resources	Using Existing Resources     Requiring New Resources			
Projected Implementation Date (must be 60 days from proposal submission as per COMAR 13B.02.03.03)	• Fall • Spring • Summer Year: 2024			
Provide Link to Most Recent Academic Catalog	URL: http://catalog.umes.edu/			
	Name: Mr. Chris Hartman			
D. C. 1 C. 4 C. 4 C. 4 D 1	Title: Associate Professor and Program Coordinator			
Preferred Contact for this Proposal	Phone: (410) 651-8317			
	Email: chartman@umes.edu			
Describe and Chief Franchisco	Type Name: Dr. Heidi M. Anderson			
President/Chief Executive	Signature: Acion Ole Date: 03/15/2024			
	Date of Approval/Endorsement by Governing Board:			

Revised 1/2021

# Proposal for a Bachelor of Science Degree: Aviation Maintenance Management

# University of Maryland Eastern Shore Engineering and Aviation Sciences Department Aviation Science Program

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#### A. CENTRALITY TO INSTITUTIONAL MISSION STATEMENT 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 Bachelor of Science degree in Aviation Maintenance Management is designed to provide students with the necessary knowledge and skills to manage and maintain aircraft systems and equipment. This program combines technical aviation maintenance and management coursework with general education coursework.

The program covers various topics, including aviation laws and regulations, aviation safety, aircraft systems and structures, avionics systems, aviation maintenance management, aviation maintenance practices and procedures, logistics and supply chain management, and aviation human factors.

The curriculum is designed to give students a comprehensive understanding of the aviation industry and the skills necessary to maintain aircraft safely and efficiently. Students will learn how to manage aviation maintenance operations, including scheduling maintenance, managing technicians, budgeting, and implementing quality assurance programs.

Upon graduation, students may pursue careers in a variety of aviation-related fields, including aviation maintenance management, aviation safety, quality assurance, logistics and supply chain management, and aircraft manufacturing. Graduates may also be prepared to pursue advanced degrees in aviation maintenance management or related fields.

Two Certificate programs are embedded within the Aviation Maintenance Management Program, comprising the Federal Aviation Administration (FAA) Part 147 Aviation Maintenance Training Program. Those components are:

Upper Division Certificate: Aviation Maintenance Technology, Airframe

Upper Division Certificate: Aviation Maintenance Technology, Powerplant

The FAA Part 147 Aviation Maintenance Training Program is a structured, comprehensive, training program that prepares students to become certified aircraft maintenance technicians and provides them with the knowledge and skills necessary to maintain and repair aircraft. After completing the General curriculum, the program is divided into two major areas: Airframe and Powerplant, each of which covers a range of topics related to aircraft maintenance.

The Aviation Maintenance Technology - Airframe Upper Division Certificate provides students with the knowledge and skills necessary to maintain and repair the structural components of an aircraft, such as the fuselage, wings, and control surfaces. The curriculum covers a wide range of subjects, including aerodynamics, aircraft materials, sheet metal work, composites, hydraulics, and pneumatics. Students will also learn how to interpret technical drawings and blueprints and how to use hand and power tools to perform maintenance and repair work.

The Aviation Maintenance Technology - Powerplant Upper Division Certificate focuses on aircraft engines and engine systems. Students will learn about the principles of engine operation, fuel systems, ignition systems, lubrication systems, and engine instrumentation. They will also learn how to diagnose

problems, troubleshoot issues, and perform preventative maintenance on engines. The curriculum includes both classroom and practical instruction, which may consist of disassembly, inspection, repair, and reassembly of aircraft engines.

Upon completing the Airframe and Powerplant Certificate programs, students can take the FAA certification exams for the Airframe mechanic and Powerplant mechanic ratings. Passing these exams earns an Airframe and Powerplant (A&P) certificate from the FAA.

This program directly relates to the mission of UMES by providing an excellent educational opportunity to its students at the undergraduate, graduate, and professional levels. This program will empower students to achieve their full potential and contribute to society's betterment.

### **B.S., AVIATION MAINTENANCE MANAGEMENT PROGRAM DESCRIPTION**

#### **DEGREE REQUIREMENTS**

The Bachelor of Science, Aviation Maintenance Management program consists of 120 total credit hours. The curricula include 41 credit hours of general education courses, 31 hours of Aviation Science core coursework, and 48 credit hours of Aviation Maintenance Technology Courses that include the Upper Division Certificate in Aviation Maintenance Technology, Airframe (30 Credits), and the Upper Division Certificate in Aviation Maintenance Technology, Powerplant (18 credits).

#### **CURRICULUM GUIDE**

AVSC

XXX

**General Education Courses** 

ı.

Curricu	ılum Are	ea I	9 Credits
ENGL	203	Fundamentals of Contemporary Speech	3
Arts ar	nd Huma	nities Course as approved by the University	3
		nities Course as approved by the University	3
Curricu	ılum Are	ea II	6 Credits
Discipl	ine A: Sc	ocial Sciences course	3
Discipl	ine B: Be	ehavioral Sciences course	3
Curricu	ılum Are	ea III	7 Credits
Studer	nts must	select two science courses, one of which must include	a laboratory
Curricu	ılum Are	ea IV	6 Credits
Studer	nts must	take 6 credits of math, with at least one course at or a	bove the level of MATH
Curricu	ılum Are	ea V	9 Credits
ENGL	101	Basic Composition I	3
ENGL	102	Basic Composition II	3
ENGL	305	Technical Writing <b>or</b>	
ENGL	310	Advanced Composition	3
Curricu	ılıım Ara	ea VI	
GNST	MAIII AI	-u •.	4 Credits
UNSI	100	Freshman Experience	<b>4</b> Credits
EXSC			
	100	Freshman Experience	
EXSC	100 111	Freshman Experience Personalized Health Fitness <b>or</b>	

#### II. Aviation Science Core Requirements

Aviation Course as approved by Department

**41 Credits** 

3

31 Credits

AVSC	231	Airline Management I	3
AVSC	241	Aviation Safety	3
AVSC	261	Aviation Organization and Leadership	3
AVSC	305	Aviation Career Preparation	1
AVSC	331	Aviation Law	3
AVSC	421	Aviation Psychology	3
AVSC	431	Maintenance Management	3
AVSC	432	Airline Management II	3
AVSC	441	Human Factors in Aviation	3
AVSC	442	Safety Management Systems	3
AVSC	490	Senior Capstone in Aviation	3

#### III. **Aviation Maintenance Technology** 48 Credits **Airframe Upper Division Certificate** 30 Credits **AVMT** 101 Aviation Math, Physics, Drawing, Weight, and Balance 3 AVMT 102 3 Aviation Fluid Lines, Fittings, Materials, Hardware, Processes, Cleaning, and Corrosion Control **AVMT** 103 Aviation Ground Operations, Services, Human Factors, 3 Electricity, and Electronics 104 3 **AVMT** Aviation Inspection Concepts, Techniques, Regulations, Forms, Records, and Publications AVMT 301 Airframe Systems and Components I 2 **AVMT** 302 2 Airframe Systems and Components II 303 2 **AVMT** Airframe Systems and Components III 3 **AVMT** 304 Airframe Systems and Components IV 305 2 **AVMT** Airframe Systems and Components V AVMT 306 Airframe Systems and Components VI 2 2 **AVMT** 307 Airframe Structures I **AVMT** 308 Airframe Structures II 3 18 Credits **Powerplant Upper Division Certificate** AVMT 401 Powerplant Theory and Maintenance I 2 3 **AVMT** 402 Powerplant Systems and Components I 3 AVMT 403 Powerplant Systems and Components II 2 AVMT 404 Powerplant Systems and Components III AVMT 405 Powerplant Systems and Components IV 2 406 3 **AVMT** Powerplant Systems and Components V 2 **AVMT** 407 Powerplant Systems and Components VI 408 **AVMT** Powerplant Systems and Components VII 1

Total 120 Credits

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

The proposed Aviation Maintenance Technology program at UMES supports the mission and strategic goals of the University by providing high-quality education in an in-demand career field and by preparing graduates to address challenges in a global knowledge-based economy. The program also meets the workforce and economic development needs of the Eastern Shore, the State, the nation, and the world.

UMES affirms its role as the State's 1890 land-grant institution by providing citizens with opportunities and access that will enhance their lives and enable them to develop intellectually, economically, socially, and culturally. The Aviation Maintenance Technology program offers students access to a holistic learning environment that fosters multicultural diversity, academic success, and intellectual and social growth.

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.

With the commission of the Engineering and Aviation Science Complex, a \$103 million investment from the state, the proposed program will be supported by about two dozen state-of-the-art engineering laboratories such as Robotics and Automation Lab, MEMS Lab with a class ISO 5 cleanroom, and Microwave Anechoic Chamber Lab, etc. Additionally, the provision of funding for additional faculty lines and other resources required to implement this program will be derived from the \$577 million settlement funds reached by the state and the HBCUs as a result of providing inequitable resources to its four historically black colleges and universities. UMES is expected to receive about 9 million dollars each year over the next ten years and funding for this initiative has already been assigned. By the beginning of the 2023 – 2024 academic year, it is expected that three faculty positions will be funded. This process will continue for the next five years.

- 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 and has made it one of the priority areas for extending the institution's footprint. With the HBCU Lawsuit Settlement fund, UMES, the School of Business and Technology, and the Department of Engineering and Aviation Sciences are equipped with the needed resources and are committed to supporting the program in every way, including ongoing administrative support, financial support, and technical support of the program.

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

This degree program is created by levering, in part, the existing faculty and staff in the Department of Engineering and Aviation Sciences at UMES and the state-of-the-art engineering laboratories in

the Engineering and Aviation Science Complex on the UMES campus. Further, State of the art facilities will be renovated and developed to house the Aviation Maintenance Training program at the Salisbury Airport. A total of three additional faculty, a Program Director, and two support staff will be added over the first 5 years of the program. The University is fully committed to the proposed program's strong initiation and long-term sustainability.

# B. CRITICAL AND COMPELLING REGIONAL AND 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

There is a critical need for aviation maintenance technicians (AMTs) for the advancement and evolution of knowledge due to several factors:

- 1. The aviation industry is continually expanding, driven by increasing passenger traffic and the need for air transportation services. This growth demands a larger workforce of skilled AMTs to maintain aircraft and ensure the safe and efficient operation of the global aviation system.
- 2. Modern aircraft are becoming more technologically advanced, incorporating sophisticated systems and materials that require specialized knowledge and skills. AMTs must keep up with these advancements to maintain and troubleshoot aircraft effectively.
- 3. Aviation is a highly regulated industry, with strict safety standards set by the Federal Aviation Administration (FAA). Skilled AMTs are essential for ensuring aircraft meet these regulatory requirements, maintaining the industry's overall safety record.
- 4. A significant portion of the existing aviation maintenance workforce is approaching retirement age, resulting in new, qualified technicians needing to fill the gap and ensure continuity in maintaining aircraft and transferring knowledge.
- 5. The aviation industry is under increasing pressure to reduce its environmental impact. AMTs play a critical role in implementing new technologies and practices to make aircraft operations more environmentally friendly, such as working with advanced materials, more efficient engines, and alternative fuel sources.
- 6. The variety of aircraft types and the emergence of new technologies, such as unmanned aerial vehicles (UAVs) and electric aircraft, create a demand for AMTs with specialized skills to maintain and repair these systems.
- 7. Aviation is a global industry, and the demand for skilled AMTs extends beyond national borders. Having a well-trained workforce of aviation maintenance technicians contributes to the overall safety and efficiency of the international aviation system.
  - b. Societal needs, including expanding educational opportunities and choices for minority and educationally disadvantaged students at institutions of higher education

There is a critical societal need for minorities and educationally disadvantaged students in the aviation maintenance technician (AMT) profession for several reasons:

- 1. Increasing diversity within the aviation maintenance workforce brings various perspectives and problem-solving approaches, fostering innovation and enhancing overall performance.
- 2. As the aviation industry expands, there is a growing need for skilled AMTs to maintain aircraft and ensure their safe operation. Encouraging minorities and educationally disadvantaged students to pursue careers in aviation maintenance can help address this demand by tapping into a broader talent pool.
- 3. Opportunities in the aviation maintenance profession offer stable, well-paying jobs with good career prospects. By encouraging and providing access to these opportunities for minorities and educationally disadvantaged students, the industry can reduce socio-economic disparities and promote social mobility.
- 4. Ensuring that the aviation maintenance workforce reflects the diversity of the broader population promotes equal representation and fairness. This can lead to a more inclusive work environment and help address the historical underrepresentation of certain groups in the industry.
- 5. Creating more educational and training opportunities for minorities and educationally disadvantaged students can help address barriers to entry, such as financial constraints or lack of access to information about the aviation maintenance profession. This will enable a broader range of individuals to pursue careers in the field.
- 6. Supporting minorities and educationally disadvantaged students in pursuing careers as AMTs can positively impact their communities. Increased representation in well-paying careers can lead to improved living standards, community pride, and the development of role models for future generations.
  - c. The need to strengthen and expand the capacity of historically black institutions to provide high-quality and unique educational programs

The Aviation Science program at UMES is unique in the State of Maryland as it is the only 4-year public degree in Aviation in the State. The Aviation Science program is already producing large numbers of indemand pilots, which no other public entity in the State can claim. This unique institutional identity is furthered by enhancing the existing program with the high-demand AMT and Maintenance Manager programs.

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

The proposed degree program is well aligned with the 2022 Maryland State Plan for Postsecondary Education in all three areas: Access, Success, and Innovation.

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

The academic program is intended to prepare highly trained technicians in an emerging area of aviation maintenance that is becoming increasingly important and relevant to our society. However, aviation maintenance is a specialized field with many barriers to student access. The proposed degree program will provide equitable access and quality education to all Maryland residents, including those with disadvantaged backgrounds, to develop a strong applied science and engineering workforce for the state.

# Success – Promote and implement practices and policies that will ensure student success.

The practices and policies concerning the proposed academic program align with all existing policies at the University, which will ensure student success. By providing a carefully developed curriculum, sufficient aviation laboratory facilities, equipment, and adequate faculty members for advising and teaching, the proposed degree program will help ensure student graduation and successful job placement.

Specifically related to **Priority 6 on improving systems for timely completion**, the proposed academic program is designed innovatively, taking advantage of new FAA regulatory frameworks and leveraging existing synergies within the Aviation Sciences program. Additionally, the program will provide robust advising and support systems to ensure students stay on track for on-time completion. Overall, the program's student-centered design will promote practices and policies for student success and timely completion.

This accelerated AMT program will allow students to complete the Bachelor's Degree program proposed here in 3 years or less.

# Innovation – Foster innovation in all aspects of Maryland higher education to improve access and student success

Specifically, the proposed academic program aligns with the goal of "Innovation" of the State Plan, which aims to "foster innovation in all aspects of Maryland higher education to improve access and student success." The proposed program will help achieve the goal of "Economic Growth and Vitality," which is centered on supporting a knowledge-based economy through increased education and training and is to ensure that Historically Black Institutions are "competitive, both in terms of program and infrastructure," with Maryland's other state institutions. Ultimately, the proposed program will prepare highly qualified technicians to contribute to the economic growth and vitality of Maryland by providing them with new knowledge and skill sets in emerging aviation technologies so they can maintain the skills they need to succeed in the workforce.

The proposed academic program strongly aligns with **Priority 8 of promoting a culture of risk-taking**. By designing an accelerated, industry-aligned degree curriculum that prepares students for emerging roles in aviation maintenance, the program fosters innovation in higher education curricula and instruction. Additionally, the focus is on an in-demand field that is not the

traditional domain of 4-year University programs. The proposal reflects a willingness to take calculated risks in developing a non-traditional program that leverages regulatory changes and industry trends.

# 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 program can expect to find employment opportunities in various industries and sectors. These technicians typically begin their careers as entry-level maintenance professionals, with the potential to advance to mid-level management positions with experience and additional training. Some potential industries and employment opportunities include:

- Airlines and commercial aircraft operators require skilled aviation maintenance technicians to maintain their fleets. Job opportunities include line maintenance, heavy maintenance, and aircraft overhaul positions.
- 2. General aviation includes a wide range of aircraft, such as private jets, small piston-engine planes, and helicopters. Graduates can find employment with Fixed Base Operators (FBOs), maintenance facilities, and flight schools, working on various types of aircraft.
- 3. Aircraft and aerospace component manufacturers need aviation maintenance technicians to perform assembly, quality control, and testing tasks. This may involve working on engines, avionics, or airframe components.
- 4. Graduates can pursue opportunities with the military or defense contractors, maintaining and repairing a wide range of military aircraft, including fighter jets, transport planes, and helicopters.
- 5. Federal and State aviation agencies, such as the FAA or the National Transportation Safety Board (NTSB), may hire aviation maintenance professionals for positions related to aircraft inspection, accident investigation, or regulatory compliance.
- 6. MRO facilities provide comprehensive aircraft maintenance services, including routine inspections, structural repairs, and engine overhauls. Graduates can work as technicians or inspectors in these specialized facilities.
- 7. Large corporations with aircraft fleets require maintenance technicians to maintain and service their planes. These positions may involve working on high-end business jets or turboprop aircraft.
- 8. The growing drone industry offers opportunities for aviation maintenance technicians to work on the maintenance and repair of unmanned aerial vehicles and their associated systems.
- 9. Companies that lease aircraft to airlines and other operators require maintenance professionals to ensure their assets are properly maintained and comply with regulatory requirements.

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

UMES commissioned a needs assessment study for an aviation technician maintenance training program for the areas served by UMES. From the report:

Examination of the local labor market trends in the aircraft maintenance industry revealed a shortage of qualified workers, high workforce turnover rates, and considerable demand for skilled labor in the Salisbury Region. Interviews with local businesses serving the region were conducted. Among those interviewed, the most informative data was obtained from representatives from the following large companies: Piedmont Airlines, Chesapeake Shipbuilders, Delaware Elevator, Ørsted, and NASA at Wallops Island. Interview data was coded and content-analyzed. Several themes emerged from the analysis.

Specifically, the most recurrent theme was a labor shortage of skilled maintenance technicians. Chesapeake Shipbuilders, for instance, indicated the need for an additional 50 to 100 technicians for the company and an additional 200 technicians when combined with the company's contractors. The company also noted the need to double its skilled labor force within the next few years. Several companies interviewed noted technician demand for aircraft maintenance workforce among their contractors and partner companies as well. Specifically, NASA at Wallops Island noted its 1200 contractors, many of whom needed skilled technician workers. Another theme that emerged from the interviews was a high turnover of maintenance technicians. For example, Chesapeake Shipbuilders revealed an extremely high attrition rate of approximately 80% among its skilled workers annually.

All companies interviewed showed interest in various partnerships with an FAA Part 147 Aviation Maintenance Training School (AMTS). Piedmont Airlines, for instance, indicated that the company could donate various training infrastructure and resources to the prospective technician training program, such as commercial aircraft and engines, or purchase tools for the school. Additionally, Piedmont Airlines expressed interest in subsidizing tuition and fees for select students on a multi-year commitment basis.

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

The employment data from the Bureau of Labor Statistics (BLS) is typically used to determine market demand. The proposed degree program will produce aircraft and avionics equipment mechanics and technicians who repair and perform scheduled maintenance on aircraft. In particular, most aircraft and avionics equipment mechanics and technicians learn their trade at a Federal Aviation Administration (FAA)-approved aviation maintenance technician school or on the job. Some learn through training received in the military. The BLS states the median annual wage for aircraft mechanics and service technicians was \$65,380 in May 2021 and the median annual wage for avionics technicians was \$69,280 in May 2021. According to the BLS data, the overall employment of aircraft and avionics equipment mechanics and technicians is projected to grow 6 percent from 2021 to 2031, about as fast as the average for all occupations. Also, according to BLS data about 13,100 openings for aircraft and avionics equipment mechanics and technicians are projected each year, on average, over the decade. Many of

those openings are expected to result from the need to replace workers who transfer to different occupations or exit the labor force, such as to retire.

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

UMES commissioned a needs assessment study for an aviation maintenance training program for the areas served by UMES. From the report:

Departments of Labor in Maryland and Delaware are tasked with developing official industry and occupational projections for local labor markets. As state-level data indicate, employment in the occupation of aircraft mechanics and service technicians is projected to add annually 390 new jobs in Maryland and 41 new jobs in Delaware between 2018 and 2028. Thus, the projected annual job openings in two states, a measure of annual demand, is 431 jobs.

In addition to state-level estimates, the Maryland Department of Labor (n.d.) prepares occupational projections based on workforce regions. The region where Salisbury is located, Lower Shore, consists of three counties: Somerset County, Wicomico County, and Worcester County. The department projects neither an increase nor decrease in aircraft mechanics and service technicians in the Lower Shore region between 2018 and 2028. In Upper Shore, a workforce region north of the Lower Shore region, no employment projections in this occupation (SOC code 49-3011) are included. Thus, the state-level projected annual job openings (390 jobs) are expected to occur in other areas of Maryland.

Similarly, the Delaware Department of Labor has 2018-2028 occupational projections by county available on its website (Delaware Department of Labor, n.d.). Of the 41 annual job openings in Delaware, no new jobs are projected in Sussex County (the closest to Salisbury, MD), 8 new jobs are projected in Kent County, with the rest of the projected annual jobs in New Castle County (the farthest from Salisbury, MD).

Real-time demand for occupations may be ascertained based on the frequencies of advertised positions in the region and the State. The search for aircraft mechanics and service technician jobs posted in Maryland and Delaware over the past 12 months (November 1, 2020 to October 31, 2021) has yielded 255 postings. The job postings may further be broken out by metropolitan statistical areas (MSA). The top seven MSAs with the most job postings are detailed in the Table below.

MSA		Number of postings
1.	California-Lexington Park, MD	75
2.	Baltimore-Columbia-Towson, MD	55
3.	Washington-Arlington-Alexandria, DC-VA-MD-WV	47
4.	Salisbury-Cambridge, MD-DE	28
5.	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	26

6.	Dover, DE	17
7.	Hagerstown-Martinsburg, MD-WV	5

Demand indicators from state-level occupational projections and online vacancies in Maryland and Delaware differ by 431 annual job openings vs. 255 job postings, respectively. Given the COVID-19 epidemic and its influence on the labor market dynamics, state-based occupational projections may not reflect accurate demand for aircraft technicians at the moment and for the next few years. A more accurate indication of demand may be obtained through online vacancies posted over the past 12 months, which include 255 job postings.

Examining program completions (supply-side data) and job postings (demand-side data) for aircraft mechanics and service technicians in Maryland and Delaware point to a supply shortage compared to the demand. The demand, as evidenced by 255 job vacancies advertised in Maryland and Delaware over the past 12 months, clearly outstrips the potential supply of specialists (97 program completions) trained in this occupation at four vocational schools within the 180-mile radius of Salisbury, MD. The fact that no trained labor supply in this occupation is available in either of the two states examined here points to an urgent need to open an aviation maintenance technician school in the Salisbury area.

Data indicates that the region's higher education institutions are not providing needed labor, shifting the burden on the industries to find workers in other economies to fill the required occupations. Undersupply of the necessary human capital may lead to missed opportunities for economic growth and put stress on local businesses to find the workforce they need elsewhere.

#### 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.

No other Bachelor's degree program in Aviation Maintenance Management exists in Maryland. The closest regional program is located at Liberty University in Virginia. Liberty is a private, not-for-profit Christian University whose mission and population differ substantially from UMES's.

The proposed undergraduate program in Aviation Maintenance Technology, Airframe, and Powerplant that comprise the proposed FAA Part 147 program here can only be found at one other location in the State of Maryland. That location is Hagerstown, delivered there by the Pittsburg Institute of Technology (PIA). PIA offers a Part 147 certification program that does not culminate in any degree.

2. Provide justification for the proposed program.

Duplication is not considered to be a factor since no other programs for Aviation Maintenance Management bachelor's or associate degrees exist in the State.

### E. RELEVANCE TO HIGH-DEMAND PROGRAMS AT HISTORICALLY BLACK INSTITUTIONS (HBIS)

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

The program proposed enhances the high-demand Aviation Science program at UMES, an HBI. This will be both the first program of its kind in the State of Maryland and the first at an HBI in the region.

### F. RELEVANCE TO THE IDENTITY OF HISTORICALLY BLACK INSTITUTIONS (HBIs)

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

The Aviation Science program at UMES is unique in the State of Maryland as it is the only 4-year public degree in Aviation in the State. The Aviation Science program is already producing large numbers of indemand pilots, which no other public entity in the State can claim. This unique institutional identity is furthered by enhancing the existing program with the high-demand AMT program.

# G. ADEQUACY OF CURRICULUM DESIGN AND DELIVERY TO RELATED LEARNING OUTCOMES (COMAR 13B.02.03.10)

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

The program was established through a partnership between local industry, the University, and local economic development organizations. The University engaged the services of a Consultant in the conduct of a needs assessment and for the development of the curriculum and overall design of the program.

Faculty who will oversee the program are described below:

Faculty Member	Rank	Degree or other Credentials	Courses	Other Role
Maintenance Program Director TBD	Lecturer	FAA A&P, FAA Part 147 leadership	AVMT coursework	Part 147 program oversight
AMT Instructor TBD	Lecturer or Instructor	FAA A&P	AVMT coursework	Airframe Certificate Lead
AMT Instructor TBD	Lecturer or Instructor	FAA A&P	AVMT coursework	Powerplant Certificate Lead
Chris Hartman	Associate Professor	Aeronautics Terminal Degree, CFI-I, MEI	AVSC Coursework	Aviation Program Coordinator
Xavier Henry	Lecturer	PhD	AVSC Coursework	
Edward J. Brink III	Clinical	Aeronautics Terminal	AVSC Coursework	Chief Flight

	Assistant	Degree, CFI-I, MEI		Instructor
	Professor			
Aviation	Lecturer or	Aeronautics Terminal	AVSC Coursework	Aviation
Management	Assistant	Degree		Management
Faculty TBD	Professor			Concentration
				Lead

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

The program's educational objectives and learning outcomes are designed to provide students with the knowledge and skills necessary to become competent and effective aircraft maintenance professionals. These objectives and outcomes are appropriate to the program's rigor, breadth, and modality, including academic and practical components.

Some of the educational objectives and learning outcomes of this program are:

- Knowledge of aviation regulations: Students will thoroughly understand aviation regulations, including FAA regulations and guidelines. They can apply these regulations in their work as aircraft maintenance professionals.
- 2. Knowledge of aircraft systems: Students will have a comprehensive understanding of aircraft systems, including electrical, hydraulic, and pneumatic systems. They will be able to diagnose and repair problems with these systems.
- 3. Knowledge of aircraft maintenance practices: Students will be familiar with aircraft maintenance practices, including inspection, repair, and overhaul procedures. They can perform these procedures to ensure the safe and reliable operation of aircraft.
- 4. Critical thinking and problem-solving skills: Students will be able to think critically and solve problems related to aircraft maintenance. They can identify problems, evaluate possible solutions, and implement effective solutions.
- 5. Communication skills: Students can communicate effectively with colleagues, supervisors, and customers. They will be able to convey technical information clearly and accurately.
- 6. Safety awareness: Students will be aware of safety protocols and procedures related to aircraft maintenance. They will be able to work safely and identify potential safety hazards.

The educational objectives and learning outcomes appropriate to this program are designed to prepare students for successful careers as aircraft maintenance professionals. By achieving these objectives and outcomes, students will gain the knowledge and skills necessary to enter the aviation industry and advance in their careers.

- 3. Explain how the institution will:
  - a. Provide for assessment of student achievement of learning outcomes in the program

Assessing student achievement of learning outcomes is an essential part of the program. Below are planned ways that student achievement of learning outcomes will be measured:

- Written exams will be used to assess student achievement of learning outcomes. These exams will cover theoretical knowledge and may include multiple-choice, short-answer, and essay questions.
- 2. Practical exams will be used in assessing student achievement of learning outcomes. These exams will determine a student's ability to apply theoretical knowledge to real-world situations. For example, a practical exam may require a student to diagnose and repair a specific aircraft component.
- 3. Skills assessments will be used to evaluate a student's ability to perform specific tasks related to aircraft maintenance. For example, a skills assessment may require a student to demonstrate their ability to use specific tools or equipment.
- 4. Projects and assignments will provide a more comprehensive assessment of student achievement of learning outcomes. For example, a project may require a student to research and write a report on a specific aircraft system, demonstrating their ability to analyze and apply theoretical knowledge.
- 5. Performance evaluations will be used to assess a student's overall performance throughout the program. These evaluations will be based on factors such as attendance, participation, and attitude.
  - b. Document student achievement of learning outcomes in the program

Documenting student achievement of learning outcomes in the program requires a combination of assessment methods, tracking tools, and communication strategies. Below are methods that will be used to document student achievement of learning outcomes:

- 1. Will use a variety of assessment methods, such as written exams, practical exams, simulations, and group projects, to measure students' knowledge, skills, and abilities.
- 2. A competency matrix will be developed that maps learning outcomes to specific tasks or skill sets required for the program.
- 3. An LMS will be used to manage course content, track student progress, and store assessment data.
- 4. A record for each student will be used to document students' hands-on experience working on required skill projects.
- 5. UMES will keep detailed records of students' assessments, practical experience, and progress throughout the program.
- 4. Provide a list of courses with titles, semester credit hours, and course descriptions, along with a description of program requirements

Course Number	Course Title Brief Course Description	New Course	Credits
AVSC 231	Airline Management I	No	
	This course studies the operational requirements of Part 135 and 121 carriers in the National Airspace System. Discussion includes value analysis of different aircraft types for various users, cost-effective operations, marketing considerations, facilities, equipment suitability, aircraft acquisition, and modernization. Typical subjects include aviation regulations, records, and documents associated with air carrier operations. The efficient flow of air traffic, and handling of passengers, baggage, freight, and visitors. The configurations and designs of airports are discussed, which include aircraft types and features, cost-effective operations, marketing considerations, facility, equipment suitability, and modernization.		3
AVSC 241	Aviation Safety	No	
	Aviation Safety is designed to promote sound practice and an understanding of the safety net for commercial and general aviation. This course provides the student with a foundation and framework in aviation and transportation safety. The course objectives are: to gain an understanding of the knowledge, skills, and abilities required in aviation; to enhance the student's safety awareness; to familiarize the student with hazards associated with the aviation environment; and to impart to the student a broad understanding of the United States' safety system. Some typical areas are safety data, investigations, aviation maintenance, collision avoidance, Cockpit Resource Management (CRM), physiology, situation awareness, and human factors.		3
AVSC 261	Aviation Organization and Leadership	No	
	This course is a study of the various organizational theories as they apply to the aviation industry. The course will cover the topics of human resources management, labor relations, classical and rational theories of organizational structure and management, the evolution of business organization, and the economics of organizations.		3
AVSC 305	Aviation Career Preparation	No	
	This course is designed to prepare Aviation Science students for entry into the aviation career field. Topics and		1

	assignments will include resume writing, course portfolio		
	creation, and the development of interview skills through		
	the use of mock interviews. This course will prepare		
	students to enter an Internship		
AVSC 331	Aviation Law	No	
	This course is a study of the foreign and domestic legal		
	system (federal, State, and local laws and regulations)		
	concerning air transportation and implications as they relate		3
	to operations, contracts, insurance, liability, and regulatory		
	status, in the field of aviation. Emphasis is on domestic and		
	international legal aspects of air transportation.		
AVSC 421	Aviation Psychology	No	
	This course is designed to introduce students to human		
	factors and crew resource management theory in aviation		
	that relate to diverse areas such as engineering, psychology,		3
	physiology, aerospace safety, and flight training. Special		3
	attention will be paid to the flight crew's ergonomics,		
	technology integration, human performance, pilot selection,		
	and training.		
AVSC 431	Maintenance Management	No	
	The aviation industries are concerned about the design and		
	operation of maintenance control systems. The ratio of		
	maintenance craftsmen to operators is higher than		
	traditional industry standards. This fact leads to the		
	realization that the effective management of production		3
	resources would yield more benefits to the organization.		
	The emphasis of this course is placed on computer		
	information systems. Seniors or Juniors will demonstrate		
	the knowledge needed to set up and maintain a		
	maintenance program.		
AVSC 432	Airline Management II	No	
	This course is a study of the business practices, operations,		
	and management principles used by domestic and		
	international airlines. The following topics are discussed:		3
	regional airlines, fleet planning, customer services, routing		
	the efficient flow of air traffic, domestic and foreign airline		
	competition, and fare structuring.		
AVSC 441	Human Factors in Aviation	No	
	Human factors, an interdisciplinary subject, is an empirical		
	science that deals with human capabilities and behavior as		3
	1	i .	1
	applied to a given system. Technical disciplines contributing to human factors are anthropometry, biomechanics,		

	engineering, mathematics, and psychology. This course is a		
	study of the interface and relationship between humans and machines in the aviation environment. The outcome adjusts the things or ways people use them and the environment for a better match of capabilities, limits, or needs. Human Factors in Aviation is designed to bridge the gap between the theory and the practical application in aviation. The course material will include performance, design, human senses, information processing, workload, group interaction, fatigue, errors, memory allocation, introduction to control, displays, and this is a design course. Students will design their safety plan for the company of the student's choice. The course covers safety quantification, laws, regulations, and policies. Topics include OSHA, cost analysis, hazardous conditions, failure models, risk analysis, and performance measurements.		
AVSC 442	Safety Management Systems	No	
	This course is a design course. Students will design their safety plan for the company of the student's choice. The course covers safety quantification, laws, regulations, and policies, topics include OSHA, cost analysis, hazardous conditions, failure modes, risk analysis, and performance measurements.		3
AVSC 490	Senior Capstone in Aviation	No	
	This is the capstone course for Aviation students. The capstone course is a partial requirement for graduation with a degree in Aviation Sciences or Aviation Maintenance Management. The course is a project or design course in an area of mutual interest to the student and faculty advisor and includes a comprehensive examination in the core aviation studies.		3
<b>AVMT 101</b>	Aviation Math, Physics, Drawing, Weight, and Balance	Yes	
	This course will prepare students to exhibit satisfactory knowledge, risk management, and skills associated with Mathematics, Physics for Aviation, Aircraft Drawing, and Weight and Balance in accordance with FAA General Airman Certification Standards.		3
AVMT 102	Aviation Fluid Lines, Fittings, Materials, Hardware,	Yes	
	Processes, Cleaning, and Corrosion Control		
	This course will prepare students to exhibit satisfactory knowledge, risk management, and skills associated with Fluid Lines and Fittings, Aircraft Materials, Hardware, and		3

Airframe Systems and Components V This course will prepare students to exhibit satisfactory	Yes	2
Airtrame Systems and Components V	Ves	
		1
in accordance with FAA Airframe Airman Certification Standards.		
aircraft electrical, communications, and navigation systems		
knowledge, risk management, and skills associated with		3
This course will prepare students to exhibit satisfactory		
Airframe Systems and Components IV	Yes	
Airman Certification Standards.		
aircraft flight controls in accordance with FAA Airframe		
knowledge, risk management, and skills associated with		2
This course will prepare students to exhibit satisfactory		1
Airframe Systems and Components III	Yes	
Airframe Airman Certification Standards.		
aircraft inspections and fuel systems in accordance with FAA		_
knowledge, risk management, and skills associated with		2
This course will prepare students to exhibit satisfactory	103	1
Airframe Systems and Components II	Yes	
Standards.		
accordance with FAA Airframe Airman Certification		
landing gear, hydraulic, and pneumatic systems in		2
knowledge, risk management, and skills associated with		
This course will prepare students to exhibit satisfactory	1.00	-
Airframe Systems and Components I	Yes	
with FAA General Airman Certification Standards.		
maintenance forms, records, and publications in accordance		
inspection concepts and techniques and regulations		
knowledge, risk management, and skills associated with		3
This course will prepare students to exhibit satisfactory		1
Forms, Records, and Publications	103	
Aviation Inspection Concepts, Techniques, Regulations,	Yes	
with FAA General Airman Certification Standards.		
fundamentals of electricity and electronics in accordance		
knowledge, risk management, and skills associated with ground operations and servicing, human factors, and		3
This course will prepare students to exhibit satisfactory		3
Electricity, and Electronics		_
Aviation Ground Operations, Services, Human Factors,	Yes	
Standards.		
accordance with FAA General Airman Certification		
<del>-</del>		
acco Star	ndards.	ordance with FAA General Airman Certification ndards.

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	aircraft instruments and environmental systems in		
	accordance with FAA Airframe Airman Certification		
	Standards.		
<b>AVMT 306</b>	Airframe Systems and Components VI	Yes	
	This course will prepare students to exhibit satisfactory	1 2 2	
	knowledge, risk management, and skills associated with		2
	aircraft systems and rotorcraft fundamentals in accordance		_
	with FAA Airframe Airman Certification Standards.		
AVMT 307	Airframe Structures I	Yes	
AVIVII 307	This course will prepare students to exhibit satisfactory	103	
	knowledge, risk management, and skills associated with		2
	aircraft metallic structures in accordance with FAA Airframe		
A \	Airman Certification Standards.	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
<b>AVMT 308</b>	Airframe Structures II	Yes	
	This course will prepare students to exhibit satisfactory		
	knowledge, risk management, and skills associated with		3
	aircraft non-metallic structures in accordance with FAA		
	Airframe Airman Certification Standards.		
<b>AVMT 401</b>	Powerplant Theory and Maintenance I	Yes	
	This course will prepare students to exhibit satisfactory		
	knowledge, risk management, and skills associated with		2
	engine inspections and propellers in accordance with FAA		
	Powerplant Airman Certification Standards.		
<b>AVMT 402</b>	Powerplant Systems and Components I	Yes	
	This course will prepare students to exhibit satisfactory		
	knowledge, risk management, and skills associated with		3
	reciprocating engines in accordance with FAA Powerplant		
	Airman Certification Standards.		
AVMT 403	Powerplant Systems and Components II	Yes	
	This course will prepare students to exhibit satisfactory	-	
	knowledge, risk management, and skills associated with		3
	turbine engines in accordance with FAA Powerplant Airman		
	Certification Standards.		
AVMT 404	Powerplant Systems and Components III	Yes	
AVIVII 404	This course will prepare students to exhibit satisfactory	163	
	·		2
	knowledge, risk management, and skills associated with		2
	engine electrical and instrument systems in accordance with		
A)/BAT 405	FAA Powerplant Airman Certification Standards.	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
AVMT 405	Powerplant Systems and Components IV	Yes	
	This course will prepare students to exhibit satisfactory		2
	knowledge, risk management, and skills associated with		_
	engine fire protection, ignition and starting systems in		

	accordance with FAA Powerplant Airman Certification		
	Standards.		
<b>AVMT 406</b>	Powerplant Systems and Components V	Yes	
	This course will prepare students to exhibit satisfactory		
	knowledge, risk management, and skills associated with		3
	engine lubrication, fuel, and fuel metering systems in		3
	accordance with FAA Powerplant Airman Certification		
	Standards.		
<b>AVMT 407</b>	Powerplant Systems and Components VI	Yes	
	This course will prepare students to exhibit satisfactory		
	knowledge, risk management, and skills associated with		2
	engine air, induction, and cooling systems in accordance		
	with FAA Airframe Powerplant Certification Standards.		
<b>AVMT 408</b>	Powerplant Systems and Components VII	Yes	
	This course will prepare student to exhibit satisfactory		
	knowledge, risk management, and skills associated with		1
	engine exhaust and reverser systems in accordance with		
	FAA Powerplant Airman Certification Standards.		

The program requirements for students in an FAA Part 147 maintenance training program are designed to ensure that they have the knowledge and skills necessary to become competent and effective aircraft maintenance professionals. By meeting these requirements, students can gain the qualifications required to enter the aviation industry and advance in their careers.

Program requirements include, but are not limited to:

- 1. Students must attend all required classes and complete all assignments to complete the program successfully.
- 2. Students must complete the program's academic portion, which includes coursework in aviation regulations, aircraft systems, mathematics, physics, and aircraft maintenance practices.
- 3. Students must complete the practical portion of the program, which includes hands-on training in the maintenance, repair, and inspection of aircraft components.
- 4. Students must pass written and practical exams to earn the FAA Airframe and Powerplant (A&P) mechanic certification.
- 5. Students must complete the required General Education requirements
- 6. Students must complete all Aviation Science Core courses
- 5. Discuss how general education requirements will be met, if applicable

The General Education requirements of the Bachelor of Science, Aviation Maintenance Management Degree program will be completed at UMES. The General Education requirements are as described below:

**General Education Courses** 

**41 Credits** 

Curriculum A	rea I	9 Credits						
ENGL 203	Fundamentals of Contemporary Speech	3						
Arts and Hum	anities Course as approved by the University	3						
Arts and Humanities Course as approved by the University 3								
Curriculum A	rea II	6 Credits						
Discipline A: S	ocial Sciences course	3						
Discipline B: B	Behavioral Sciences course	3						
Curriculum A	rea III	7 Credits						
Students mus	t select two science courses, one of which must in	nclude a laboratory						
Curriculum A	rea IV	6 Credits						
6 credits of M	6 credits of MATH, with at least one course at or above the level of MATH 109							

Curric	ulum Ar	ea V	9 Credits
ENGL	101	Basic Composition I	3
ENGL	102	Basic Composition II	3
ENGL	305	Technical Writing <b>or</b>	
ENGL	310	Advanced Composition	3
Curric	ulum Ar	ea VI	4 Credits
GNST	100	Freshman Experience	1
EXSC	111	Personalized Health Fitness or	
EDTE	111	Technology and Society or	
HUEC	203	Human Development: A Life Perspective or	
AVSC	XXX	Aviation Course as approved by Department	3

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

To start the FAA Part 147 Aviation Maintenance Training Program, UMES will meet specific FAA requirements and obtain approval from the Federal Aviation Administration (FAA).

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

Not applicable

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 program will:

The existing UMES Student Handbook and Academic Catalog includes information on costs and payment policies, academic support services, the nature of faculty and student interactions, and the availability of educational support services.

The program will develop a comprehensive aviation maintenance technician student handbook available on the website that is up-to-date and provides detailed information on the curriculum, course and degree requirements, faculty/student interaction, technology requirements, learning management system, academic support services, financial aid resources, and costs and payment policies.

Students will receive a detailed syllabus for each course that clearly outlines the course objectives, expectations, assignments, grading policies, and required readings or resources.

Orientation sessions will be conducted for new students that provide an overview of the program and its requirements and information on available academic support services and financial aid resources.

The program will utilize technology to provide students with timely and relevant information, such as regular email updates. It will conduct surveys and solicit feedback from students to ensure that the program is meeting their needs and receiving the necessary information in a clear and timely manner.

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 program will:

Ensure that all marketing materials, including brochures, website content, and social media posts, are reviewed and approved by a designated authority to verify their accuracy and compliance with relevant laws, regulations, and ethical standards.

Use clear and concise language to describe the program and its services.

Provide detailed information about the program's curriculum, degree requirements, faculty qualifications, learning outcomes, and student support services.

Use testimonials and case studies from current or former students to illustrate the program's benefits, while ensuring that the testimonials are accurate and representative.

Clearly state any program limitations, such as enrollment caps or technical requirements, and any potential costs or fees associated with the program.

Use images, videos, or other multimedia content to visually represent the program and its services.

Maintain accurate and up-to-date information on the program's website and social media pages, regularly monitoring and responding to inquiries and feedback from prospective students.

### 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.

This new program will be established at the Salisbury Maryland Airport, located at 5443 Airport Terminal Road, Salisbury, MD 21802. UMES has existing articulation agreements with community colleges in the State, such as Wor-Wic Community College, and high schools. We will leverage the existing partnerships to develop, when appropriate, new articulation agreements with high schools in the local counties and community colleges for the proposed program.

### I. ADEQUACY OF FACULTY RESOURCES (AS OUTLINED IN COMAR 13B.02.03.11)

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

Existing Aviation Science (AVSC) coursework in the degree program will be delivered by existing faculty that meet the educational and background requirements to teach the material as established by University and Department policy.

New AVMT coursework will only be taught by individuals who are qualified to teach within the FAA Part 147 aviation maintenance training program. Per the FAA, instructors must have an FAA-issued certificate as an Aircraft Mechanic with Airframe and Powerplant ratings. Instructors will have recent experience working on aircraft and its components.

Faculty Member	Rank	Full-Time, Part- Time, Adjunct	Degree or other Credentials	Other Role
Maintenance Program Director	Lecturer	Full-time	FAA A&P, FAA Part 147 leadership	Part 147 program oversight

TBD				
AMT Instructor TBD	Lecturer or	Full-time	FAA A&P	Airframe Certificate Lead
	Instructor			
AMT Instructor TBD	Lecturer or	Full-time	FAA A&P	Powerplant Certificate Lead
	Instructor			
Chris Hartman	Associate	Full-time	Aeronautics Terminal	Aviation Program
	Professor		Degree, CFI-I, MEI	Coordinator
Xavier Henry	Lecturer	Full-time	PhD	
Edward J. Brink III	Clinical	Full-time	Aeronautics Terminal	Chief Flight Instructor
	Associate		Degree	
	Professor			
Aviation	Lecturer or	Full-time	Aeronautics Terminal	Aviation Management
Management	Assistant		Degree	Concentration Lead
Faculty TBD	Professor			

Courses	Maintenance	AMT	AMT	Chris	Xavier	Edward J.	Aviation
	Program	Instructor	Instructor	Hartman	Henry	Brink III	Management
	Manager	1	2				Faculty
AVMT 101	X	Χ	X				
AVMT 102	X	X	X				
AVMT 103	X	X	X				
AVMT 104	X	X	X				
AVMT 301	X	X	X				
AVMT 302	X	Χ	X				
AVMT 303	X	Χ	X				
AVMT 304	X	Χ	X				
AVMT 305	X	X	X				
AVMT 306	X	X	X				
AVMT 307	X	Χ	X				
AVMT 308	X	Χ	X				
AVMT 401	X	Χ	X				
AVMT 402	X	X	X				
AVMT 403	X	X	X				
AVMT 404	X	X	X				
AVMT 405	X	X	X				
AVMT 406	X	Χ	X				
AVMT 407	X	Χ	X				
AVMT 408	X	Χ	X				
AVSC 231							X
AVSC 241					Х		
AVSC 261						X	
AVSC 305				Х			
AVSC 331				Х			
AVSC 421				Х			
AVSC 431						X	

AVSC 432				Х
AVSC 441		Χ		
AVSC 442			Х	
AVSC 490			Х	

- 2. Demonstrate how the institution will provide ongoing pedagogy training for faculty in evidencedbased best practices, including training in:
  - a. Pedagogy that meets the needs of the students

UMES will offer regular professional development opportunities for faculty to stay up-to-date on the latest pedagogical techniques and technologies. These opportunities will include workshops, conferences, webinars, and online courses.

UMES will encourage a culture of collaboration and continuous improvement, where faculty can share best practices and learn from each other. This will be facilitated through regular meetings, peer observation and feedback, and the use of learning communities.

UMES will use data to inform pedagogical decision-making, such as analyzing student performance data, assessing student feedback, and using learning analytics to improve student engagement and retention.

Faculty will receive regular feedback and evaluation on their teaching performance, including student feedback, peer observation, and supervisor evaluations. This will help identify areas for improvement and provide opportunities for ongoing training and development.

Faculty will be trained in evidence-based teaching strategies that are proven to be effective in improving student learning outcomes. These strategies will include active learning, flipped classrooms, problem-based learning, hands-on learning, and peer teaching.

#### b. The learning management system

The Center for Instructional Technology and Online Learning (CITOL) at UMES supports the development, design, and delivery of online and hybrid programs, classes, and workshops with a focus on flexibility, resiliency, equity, accessibility, privacy, and safety (FREAPS). CITOL assists faculty, staff, and students in all aspects of digital teaching and learning concerning pedagogy and technology. This includes the use of the Canvas Learning Management System, Echo360, Google Workspace, Respondus 4.0, and Respondus LockDown Browser. Evidenced-based best practices for distance education, if distance education is offered.

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

The Center for Instructional Technology and Online Learning (CITOL) at UMES supports the development, design, and delivery of online and hybrid programs, classes, and workshops with a focus on flexibility, resiliency, equity, accessibility, privacy, and safety (FREAPS). CITOL assists faculty, staff, and students in all aspects of digital teaching and learning concerning pedagogy and technology. This includes the use of the Canvas Learning Management System, Echo360, Google Workspace, Respondus

4.0, and Respondus LockDown Browser. Other Services offered by the Center for Instructional Technology and Online Learning include: supporting the Canvas Learning Management System (LMS) and other instructional software which can be found on the CITOL website: new resources; providing ongoing professional development through virtual workshops; conducting UMES Online Teaching Certification & Course Quality Review; developing interactive and assessment materials for classes; and helping troubleshoot student problems on LMS.

### J. ADEQUACY OF LIBRARY RESOURCES (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 University assures that institutional library resources meet the new program's needs. Typically, library resources for the proposed degree program include textbooks, reference books, and technical papers. Additional resources that will be added for program use are technical manuals and publications as required by the FAA Part 147 AMT program.

#### K. ADEQUACY OF PHYSICAL FACILITIES, INFRASTRUCTURE, AND INSTRUCTIONAL EQUIPMENT

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 plan for facilities, infrastructure and instruction equipment was developed in cooperation with a Consultant and used input from Industry partners. Classroom spaces, faculty and staff offices, and laboratories are integral to this plan. Further, the Federal Aviation Administration sets standards for the facilities that must be met or exceeded for program certification. The proposed plan of action provides for the adequacy of these facilities and FAA certification.

- 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:
  - d. An institutional electronic mailing system, and
  - e. A learning management system that provides the necessary technological support for distance education

(a) and (b): The Center for Instructional Technology (CITOL) and Academic Computing Unit professionals provide faculty support for the development and instruction. Consultation is available for issues such as instructional design, software development, educational research, Canvas learning management system,

etc. These technologies and opportunities ensure that students enrolled in and faculty teaching have adequate access to learning resources.

# L. ADEQUACY OF FINANCIAL RESOURCES WITH DOCUMENTATION (OUTLINED IN COMAR 13B.02.03.14)

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: PROGRAM RESOURCES								
Resource Categories	Year 1	Year 2	Year 3	Year 4	Year 5			
1. Reallocated Funds	\$0	\$0	\$0	\$0	\$0			
2. Tuition/Fee Revenue	\$608,600	\$644,600	\$1,089,600	\$1,089,600	\$1,089,600			
a. Number of F/T Students	35	35	60	60	60			
b. Annual Tuition/Fee Rate	\$16,360	\$16,360	\$16,360	\$16,360	\$16,360			
c. Total F/T Revenue (a x b)	\$572,600	\$572,600	\$981,600	\$981,600	\$981,600			
d. Number of P/T Students	10	20	30	30	30			
e. Credit Hour Rate	\$600	\$600	\$600	\$600	\$600			
f. Annual Credit Hour Rate	\$3,600	\$3,600	\$3,600	\$3,600	\$3,600			
g. Total P/T Revenue (d x e x f)	\$36,000	\$72,000	\$108,000	\$108,000	\$108,000			
3. Grants, Contracts & Other External Sources	\$2,900,000	\$0	\$0	\$0	\$0			
4. Other Sources	\$0	\$0	\$0	\$0	\$0			
TOTAL (Add 1 – 4)	\$3,508,600	\$644,600	\$1,089,600	\$1,089,600	\$1,089,600			

#### **TABLE 1 NARRATIVE**

#### a) Reallocated Funds

There are no reallocated funds associated with this proposal.

#### b) Tuition/Fee Revenue

Projected enrollment numbers are based on the maximum of 25 students that can be approved in a new FAA 147 AMT program. These students will pay a special tuition/fee rate equal to \$452/credit hour for the AVMT coursework associated with the FAA Part 147 program. The total number of credits in this area is 48, for a total cost of the Airframe and Powerplant Upper Division Certificates of \$21,700. In Year 3, the program is expected to expand to accommodate 50 students per cohort.

Students enrolled in AVSC and General Education coursework toward the Bachelor of Science, Aviation Maintenance Management Degree program will pay standard UMES tuition and fee rates. There are expected to be approximately 10 of these students per year beyond students enrolled in the Certificate programs. For these students, an average cost per credit hour is calculated at \$304 (UMES Eastern Shore Region Rate)

The tuition rate is calculated based on the weighted breakdown of students pursuing AVMT coursework versus students pursuing AVSC coursework (\$409 per credit hour). The expected average weighted credit load is 40 per year.

#### c) Grants, Contracts & Other External Sources

\$2,900,000 has been awarded for developing this program through a Rural Development Grant in cooperation with Salisbury Wicomico Economic Development (SWED). SWED is the facilitator of these funds available now for consultants, facilities, equipment, and all other costs associated with program startup.

#### d) Other Sources

No other sources of revenue have currently been identified.

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: PROGRAM EXPENDITURES								
Expenditure Categories	Year 1	Year 2	Year 3	Year 4	Year 5			
1. Faculty (b+c below)	\$198,000	\$302,940	\$510,028	\$525,329	\$541,089			
a. Number of FTE	2	3	4	4	4			
b. Total Salary	\$150,000	\$229,500	\$386,385	\$397,977	\$409,916			
c. Total Benefits	\$48,000	\$73,440	\$123,643	\$127,352	\$131,173			

2. Admin. Staff (b+ c below)	\$132,000	\$135,960	\$140,039	\$144,240	\$148,567
a. Number of FTE	1	1	1	1	1
b. Total Salary	\$100,000	\$103,000	\$106,090	\$109,273	\$112,551
c. Total Benefits	\$32,000	\$32,960	\$33,949	\$34,967	\$36,016
3. Support Staff (b + c below)	\$59,400	\$133,782	\$137,795	\$141,929	\$146,187
a. Number of FTE	1	2	2	2	2
b. Total Salary	\$45,000	\$101,350	\$104,391	\$107,522	\$110,748
c. Total Benefits	\$14,400	\$32,432	\$33,405	\$34,407	\$35,439
4. Technical Support and Equipment	\$2,000,000	\$0	\$0	\$0	\$0
5. Library	\$0	\$0	\$0	\$0	\$0
6. New or Renovated Space	\$600,000	\$0	\$0	\$0	\$0
7. Other Expenses	\$375,000	\$35,000	\$35,000	\$35,000	\$35,000
TOTAL (Add 1-7)	\$3,364,400	\$607,682	\$822,862	\$846,498	\$870,843

#### **Narrative Rationale for Table 2: Expenditures**

#### 1. Faculty

Two full-time faculty are required to start the program at a salary of \$75,000 each. Years 2 and 3 add one additional faculty member to support program expansion from 25 to 50 students. Salaries increase at a rate of 3% per year. Benefits are calculated at the fringe rate of 32%.

#### 2. Admin. Staff

One Maintenance Program Director is required to administer the FAA Part 147 program associated with the Aviation Maintenance Technology Coursework. The salary is \$100,000. Salary increases by 3% per year. Benefits are calculated at 32%.

#### 3. Support Staff

One full-time administrative assistant is required for program support at a starting salary of \$45,000. A parts clerk is added in Year 2 at a starting salary of \$55,000. Benefits and Fringe are calculated as with other positions.

#### 4. Technical Support and Equipment

Consultant and Equipment costs for the startup of the FAA Part 147 AMT program is budgeted at \$2.0 Million. All equipment costs are allocated to Year 1. The University's consultant created this estimate.

#### 5. Library

No additional costs are allocated for Library resources.

#### 6. New or Renovated Space

Renovation of the space required for the FAA Part 147 AMT program in Salisbury Airport Hangar 1 is budgeted at \$600,000. This includes the renovation of restrooms and classroom spaces as well as the development and design of laboratories. The University's consultant created this estimate.

#### 7. Other Expenses

Other expenses include tools, software purchases (Year 1), and subscription costs in Years 2 - 5. This estimate was created by the University's consultant.

# M. ADEQUACY OF PROVISIONS FOR EVALUATION OF THE PROGRAM (OUTLINED IN COMAR 13B.02.03.15).

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

Procedures will be implemented to ensure that the program will be effective and that students can achieve their learning objectives.

Regular course evaluations are an important tool for assessing the effectiveness of individual courses. These evaluations will be conducted through surveys or other feedback mechanisms and administered to students at the end of each course. The results of course evaluations will be used to improve the course content, teaching methods, and other aspects of the course.

Evaluating faculty is important for ensuring that they are providing high-quality instruction to their students. Faculty evaluations will be conducted through student surveys, peer evaluations, and other mechanisms. These evaluations will help identify areas where faculty may need additional training or support and can be used to recognize outstanding performance.

Assessing student learning outcomes is an essential part of evaluating the program's effectiveness. This will be done through pre-and post-testing and other assessment methods such as essays, presentations, and projects. By evaluating student learning outcomes, faculty will identify areas where students may be struggling and make recommended changes to the curriculum and teaching methods to better meet their needs.

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.

UMES will evaluate the program's effectiveness annually, including assessments of student learning outcomes, student retention, student and faculty satisfaction, and cost-effectiveness.

UMES will use assessment tools such as standardized tests, course-specific exams, and performance evaluations to evaluate student learning outcomes. By analyzing the data from these assessments, UMES will determine how well students are mastering the material covered in the program.

UMES will track the retention rates of students enrolled in the program over time. This can provide insight into whether students are completing the program or dropping out before completion.

UMES will administer surveys to students to gather feedback on their experiences in the program. These surveys can assess student satisfaction with the curriculum, teaching methods, resources, and overall program experience.

Like student satisfaction surveys, UMES will administer surveys to faculty members to gather feedback on their teaching experiences in the program. This will provide insight into faculty satisfaction with the curriculum, teaching resources, support from the administration, and other factors that may impact the quality of education offered.

UMES will conduct a cost-effectiveness analysis to determine whether the program is cost-effectively delivering educational value. This analysis will consider the program's costs, including tuition, fees, and resources required to provide the program, as well as the outcomes achieved by graduates.

# N. CONSISTENCY WITH THE STATE'S MINORITY STUDENT ACHIEVEMENT GOALS (OUTLINED IN COMAR 13B.02.03.05 AND IN THE STATE PLAN FOR POSTSECONDARY EDUCATION).

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

The UMES mission is compatible with the State of Maryland's minority achievement goals. UMES is an 1890 land grant HBCU. Our programs attract a diverse set of students, with the majority of the student population being African-American and those who are multiethnic and multicultural. The University actively recruits minority populations for all undergraduate and graduate-level degrees. Special attention is also provided to recruit females into the STEM and multidisciplinary programs at all degree levels – undergraduate, Master's, and doctoral. The same attention will be given to the program proposed here.

#### 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 program is not directly related to an identified low-productivity program at UMES.

# P. If Proposing a Distance Education Program, Please Provide Evidence of the Principles of Good Practice (outlined in COMAR 13B.02.03.22C).

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

At UMES, we are committed to continually improving our online courses and our distance education program. UMES participates in The State Authorization Reciprocity Agreement. Some of the benefits for students of our institutional participation in SARA include greater access to online programs, improved quality of distance education, and reduced institutional costs (which keeps everyone's costs lower). Currently, 47 states and the District of Columbia participate in SARA. "The State Authorization Reciprocity Agreement is a voluntary agreement among its member states and U.S. territories that establishes comparable national standards for interstate offering of postsecondary distance-education courses and programs. It is intended to make it easier for students to take online courses offered by postsecondary institutions based in another state" (NC-SARA.org).

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

UMES' commitment to online teaching is demonstrated by the resources of its Center for Instructional Technology and Online Learning (CITOL) founded in 2006, which provides a faculty computer lab, course development, and instructional, and technical support to new and current faculty. The Center for Instructional Technology and Online Learning (CITOL) at UMES supports the development, design, and delivery of online and hybrid programs, classes, and workshops with a focus on flexibility, resiliency, equity, accessibility, privacy, and safety (FREAPS). CITOL assists faculty, staff, and students in all digital teaching and learning aspects concerning pedagogy and technology. This includes using the Canvas Learning Management System, Echo360, Google Workspace, Respondus 4.0, and Respondus LockDown Browser. As C-RAC 2021 requires programs to provide details about practices to engage and assist distance education students; CITOL facilitates student-centered training and workshops, provides students mentoring and help desk support, and hosts a repository of student-centered LMS and online learning resources. The School of Business and Technology and the Center for Instructional Technology and Online Learning will ensure the degree program adheres to C-RAC Guidelines for the Evaluation of Distance Education.



Maryland Higher Education Commission 6 N Liberty St Baltimore, MD 21201

September 15, 2023

RE: Aviation Maintenance Technician Program at the University of Maryland Eastern Shore

To Whom It May Concern,

Please accept this letter in support of the University of Maryland Eastern Shore (UMES) establishing an Aviation Maintenance Technician (AMT) program at the Salisbury-Ocean City: Wicomico Regional Airport (SBY).

Salisbury-Wicomico Economic Development, Inc. has long advocated for regional partnerships to help sustain and grow our local economy. The proposed AMT program offered by UMES provides a solid collaborative effort for further growth at SBY and creates a strong partnership between Wicomico County, the University of Maryland Eastern Shore, Piedmont Airlines and other industry sector partners throughout our region. This initiative preserves hundreds of local jobs, creates the possibility for more jobs in the future and maintains and enhances scheduled airline service for our region.

Please give favorable support to UMES' request for curriculum and program approval and as always, please let me know should you wish to further discuss.

Very Truly Yours,

David Ryan

**Executive Director** 

ONE PLAZA EAST, SUITE 501 | P.O. BOX 4700 | SALISBURY, MD 21803 410.749.1251 SWED.ORG | INFO@SWED.ORG



Maryland Higher Education Commission 6 N Liberty St Baltimers, MD 21201

September 15, 2023

RE: Aviation Maintenance Technician Program at the University of Maryland Eastern 5 hore

To Whom it May Concern,

Please accept this letter in support of the University of Maryland Eastern Shore (UMES) establishing an Aviation Maintenance Technicism (ANT) program at the Salisbury-Ocean City: Wicernice Regional Airport (SBY)

The Salishury-Ocean City: Wicomico Regional Airport is the only airport on Maryland's Eastern Shore with scheduled atribus service, offered by Piedmont Airlines (disa American Eagle). The AMT program at LIMES will provide the atribus as well as other industries throughout our region a trained workforce while giving area residents great career opportunities. For SBY, the rebust offerings of an Aviation Science, Pilot Training and Aviation Maintenance prevides mere incentives to attract additional aviation and sero nautical companies and jo be to SBY.

SBY has an estimated \$150 million economic impact and ar regional economy and this program can be the catalyst to grow that impact Please give fave rable support to UMES' request for curriculum and program approval and as always, please let me knew should you wish to further discuss.

Very Truly Yeurs,

Tony Rudy, A.A.E. Airport Director

5485 Airport Terminal Rd., Unit A · Salisbury, MD 21804 · 410.548.4827

flySBYairport.com



Maryland Higher Education Commission 6 N Liberty St Baltimore, MD 21201

September 15, 2023

RE: Aviation Maintenance Technician Program at the University of Maryland Eastern Shore

To Whom It May Concern,

Please accept this letter in support of the University of Maryland Eastern Shore (UMES) establishing an Aviation Maintenance Technician (AMT) program at the Salisbury-Ocean City: Wicomico Regional Airport (SBY).

The airline industry as a whole and Piedmont Airlines in particular face critical pilot and aviation mechanic shortages now and for the foreseeable future. The proposed AMT program at SBY will create a pipeline of trained workers capable of filling good jobs in our industry as well as others in our region with similar needs for trained maintenance technicians. The new AMT program, coupled with UMES' other aviation programs, is a robust offering that will help fill needs for skilled and licensed workers in the engineering, maintenance, and flight fields, and provide great jobs for area residents. The graduates of these programs will certainly help to fuel growth of the aviation and aeronautics sector on Maryland's Eastern Shore.

Please give favorable support to UMES' request for curriculum and program approval and as always, please let me know should you wish to further discuss.

Very Truly Yours,

Cric Morgan

Eric Morgan

President and CEO



Piedmont Airlines, Inc. 5443 Airport Terminal Road Salisbury, MD 21804