

July 11, 2019

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

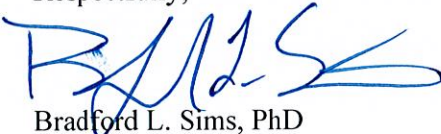
Dear Dr. Fielder,

Capitol Technology University is requesting approval to offer a **Bachelor of Science (B.S.) in Aviation Professional Pilot**. The degree curriculum will be taught using a significant number of existing faculty at our university and will be supplemented by new courses supporting the **B.S. in Aviation Professional Pilot**. The university also has an agreement with the Washington International Flight Academy to provide pilot ground school and flight training. The mission of Capitol Technology University is to provide practical education in engineering, computer science, information technology, and business that prepares individuals for professional careers and affords the opportunity to thrive in a dynamic world. A central focus of the university's mission is to advance practical working knowledge in areas of interest to students and prospective employers within the context of Capitol's degree programs. The university believes that a **B.S. in Aviation Professional Pilot** is consistent with this mission.

There is a growing requirement within aviation for highly trained pilots. This program is in response to that need. The **B.S. in Aviation Professional Pilot** degree is for students who desire to advance in their careers by earning a bachelor's degree and a commercial pilot's license.

**To respond to needs of the aviation industry, we respectfully submit for approval a Bachelor of Science (B.S.) in Aviation Professional Pilot. The required proposal is attached as well as the letter from me as university president confirming the adequacy of the university's library to serve the needs of the students in this degree.**

Respectfully,



Bradford L. Sims, PhD



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

Institution Submitting Proposal	Capitol Technology University
---------------------------------	-------------------------------

***Each action below requires a separate proposal and cover sheet.***

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

Department Proposing Program	Department of Aviation	
Degree Level and Degree Type	Bachelor of Science (B.S.)	
Title of Proposed Program	B.S. in Aviation Professional Pilot	
Total Number of Credits	120	
Suggested Codes	HEGIS: 510	CIP: 49
Program Modality	<input type="radio"/> On-campus <input type="radio"/> Distance Education ( <i>fully online</i> ) <input checked="" type="radio"/> Both	
Program Resources	<input checked="" type="radio"/> Using Existing Resources <input type="radio"/> Requiring New Resources	
Projected Implementation Date	<input checked="" type="radio"/> Fall <input type="radio"/> Spring <input type="radio"/> Summer     Year: 2019	
Provide Link to Most Recent Academic Catalog	URL: <a href="https://www.captechu.edu/current-students/academic-resources">https://www.captechu.edu/current-students/academic-resources</a>	

Preferred Contact for this Proposal	Name: Professor Soren Ashmall
	Title: Director, Assessment & Accreditation
	Phone: (571) 332-4344
	Email: <a href="mailto:spashmall@captechu.edu">spashmall@captechu.edu</a>

President/Chief Executive	Type Name: Dr. Bradford Sims
	Signature:  Date: 7-11-19

Approval/Endorsement by Governing Board	Type Name: Dr. Bradford Sims
	Signature:  Date: July 11, 2019

Revised 5/15/18



July 11, 2019

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

Dear Dr. Fielder,

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

Respectfully,

A handwritten signature in blue ink, appearing to read 'B. L. Sims', written over a horizontal line.

Bradford L. Sims, PhD

**PROPOSAL FOR:**

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



**Fall 2019**  
Projected Implementation Date

**Bachelor of Science**  
Award to be Offered

**Aviation Professional Pilot**  
Title of Proposed Program

0510.00  
Suggested HEGIS Code

49.0102  
Suggested CIP Code

**Aviation**  
Department of Proposed Program

**Professor Richard Baker**  
Name of Department Head

**Prof. Soren Ashmall**  
Director, Assessment  
and Accreditation

**spashmall@captechu.edu**  
Contact E-Mail Address

**571-332-4344**  
Contact Phone Number

*BA Ashmall 7-11-19*  
Signature and Date

President/Chief Executive Approval

*JULY 11, 2019*  
Date

Date Endorsed/Approved by Governing Board

**Proposed Bachelor of Science in Aviation Professional Pilot  
Department of Aviation  
Capitol Technology University  
Laurel, Maryland**

**A. Centrality to Institutional Mission and Planning Priorities:**

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

*Bachelor of Science in Aviation Professional Pilot Program Description:*

The **Bachelor of Science (B.S.) degree in Aviation Professional Pilot** provides the student with the necessary knowledge and training to become an aviation professional in the diverse field of Aviation. The program addresses one of the greatest employment challenges of the 21st century – how to create enough professional pilots to fill the staggering number of jobs created in the aviation industry due to the burgeoning demand for commercial and airline pilots. The degree provides a firm foundation in flight operations, airport operations, safety, risk management, Federal Aviation Administration (FAA) rules and regulations, aviation technologies, and piloting skills. Graduates of the program will have the knowledge, skills, and FAA certifications necessary to be employed as a commercial pilot by airlines, governmental agencies, or corporate employers.

The need for a **B.S. in Aviation Professional Pilot** is an outgrowth of several factors. These include new regulatory requirement for pilots, changes in pilot retirement age, too few pilots entering the industry, and a natural growth in the market for air transportation.

The primary factor is Public Law 111-216, the Airline Safety and Federal Aviation Administration (FAA) Extension Act of 2010 by Congress. On February 12, 2009, an aircraft operated by Colgan Airlines crashed on approach to Buffalo, New York. The NTSB investigation blamed the accident on pilot error and brought to light a number of issues. At the time of the accident, the only regulatory requirement for a new pilot to be hired at an airline was that they hold an FAA Commercial Pilot Certificate with as few as 250 hours of flight time. Public pressure for Congress to act resulted in Public Law 111-216. The FAA changed the regulations so new pilots must possess at least an Airline Transport Pilot Certificate (ATP) and 1,500 hours flight time. The FAA later revised these rules, allowing graduates of certain collegiate flying programs to hold a Restricted ATP with as little as 1,000 hours, essentially cutting off the hiring pipeline to less experienced pilots

Public Law 111-216 also directed a change to pilot scheduling for flight time/duty time to address fatigue levels; and, resulted in an estimated 8% more pilots required to cover the current schedule.

In 2009, the FAA changed the mandatory retirement age for airline pilots from 60 years of age to 65 and created a delayed bubble of retirements. The resulting increase in job openings as pilots meet the revised retirement age has begun already and will continue for the foreseeable future.

In addition, the aviation industry has experienced a time of unprecedented worldwide growth. Forecasts by the major aircraft manufacturers and the industry at large state the number of airline fleet aircraft and pilots will double by 2035. This forecast does not include additional growth experienced in other commercial pilot employers.

A new degree program is now required to meet the expanding needs for professional pilots in every airline and commercial pilot capacity.

*Relationship to Institutional Approved Mission:*

The **B.S. in Aviation Professional Pilot** is consistent with the University mission to educate individuals for professional opportunities in engineering, computer science, information technology, and business. The University provides relevant learning experiences that lead to success in the evolving global community. Fundamental to the degrees in the Department of Aviation are opportunities to pursue cutting-edge knowledge in management combined with technological applications, techniques, and procedures. The **B.S. in Aviation Professional Pilot** is consistent with that philosophy. This same philosophy is supported by the University's existing degree programs and learning opportunities. The University has the following undergraduate degrees: B.S. in Astronautical Engineering, B.S. in Business Analytics and Data Science, B.S. in Computer Engineering, B.S. in Computer Engineering Technology, B.S. in Computer Science, B.S. in Construction Management and Critical Infrastructure, B.S. Construction Safety, B.S. in Cyber Analytics, B.S. in Cybersecurity, B.S. in Electrical Engineering, B.S. in Electrical Engineering Technology, B.S. in Engineering Technology, B.S. in Management of Cyber and Information Technology, B.S. in Mechatronics Engineering, B.S. in Mechatronics and Robotics Engineering Technology, B.S. in Mobile Computing, B.S. in Software Engineering, and B.S. in Technology and Business Management, and B.S. in Unmanned and Autonomous Systems. The University also has the following degrees at the graduate level: M.S. in Aviation, M.S. in Computer Science, M.S. in Critical Infrastructure, M.S. in Cyber Analytics, M.S. in Cybersecurity, M.S. in Engineering Technology, M.S. in Information Systems Management, M.S. in Internet Engineering, M.S. in Unmanned and Autonomous Systems Policy and Risk Management, M.B.A., T.M.B.A. Business Analytics and Data Science, T.M.B.A. in Cybersecurity, D.Sc. in Cybersecurity, Ph.D. in Aviation, Ph.D. in Business Analytics and Decision Sciences, Ph.D. in Construction Science, Ph.D. in Critical Infrastructure, Ph.D. in Manufacturing, Ph.D. in Occupational Health and Safety, Ph.D. in Technology, Ph.D. in Technology/M.S. in Research Methods Combination Program, and Ph.D. in Unmanned Systems Applications. The **B.S. in Aviation Professional Pilot** degree fits within University's mission framework and is an integral part of the Strategic Plan for FY 2017-2021 and succeeding years. Funding to support the new degree has been included in the institutional and departmental budgets for FY 2019-2020 and forecasted budgets going forward.

The **B.S. in Aviation Professional Pilot** degree will be offered with courses both "on ground" in a traditional classroom at the University campus, online using the Canvas Learning Management System and Zoom, and at the Washington International Flight Academy at the Montgomery County Airpark in Gaithersburg, Maryland. The result is the convenience required by the 21<sup>st</sup> Century learner and provides the interaction with faculty and fellow students that is critical to the high-level learning experience. The curriculum provides the undergraduate student the necessary learning tools that the University believes critical to success as a commercial pilot and aviation professional. The degree is also consistent with the interdisciplinary nature of the University.

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

Capitol Technology University operates on four strategic goals:

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

The proposed **B.S. in Aviation Professional Pilot** builds upon the existing areas of undergraduate degree programs: B.S. in Astronautical Engineering, B.S. in Business Analytics and Data Science, B.S. in Computer Engineering, B.S. in Computer Engineering Technology, B.S. in Computer Science, B.S. in Construction Management and Critical Infrastructure, B.S. in Construction Safety, B.S. in Cyber Analytics, B.S. in Cybersecurity, B.S. in Electrical Engineering, B.S. in Electrical Engineering Technology, B.S. in Engineering Technology, B.S. in Management of Cyber and Information Technology, B.S. in Mechatronics Engineering, B.S. in Mechatronics and Robotics Engineering Technology, B.S. in Mobile Computing, B.S. in Software Engineering, and B.S. in Technology and Business Management, and B.S. in Unmanned and Autonomous Systems. The University also provides the following opportunities at the graduate level for a student to continue his/her academic pursuits: M.S. in Aviation, M.S. in Computer Science, M.S. in Critical Infrastructure, M.S. in Cyber Analytics, M.S. in Cybersecurity, M.S. in Engineering Technology, M.S. in Information Systems Management, M.S. in Internet Engineering, M.S. in Unmanned and Autonomous Systems Policy and Risk Management, M.B.A., T.M.B.A. Business Analytics and Data Science, T.M.B.A. in Cybersecurity, D.Sc. in Cybersecurity, Ph.D. in Aviation, Ph.D. in Business Analytics and Decision Sciences, Ph.D. in Construction Science, Ph.D. in Critical Infrastructure, Ph.D. in Manufacturing, Ph.D. in Occupational Health and Safety, Ph.D. in Technology, Ph.D. in Technology/M.S. in Research Methods Combination Program, and Ph.D. in Unmanned Systems Applications. The University’s undergraduate degree programs prepare students to begin their careers, or further their careers, fully employed with enhanced leadership skills and technical expertise that meet the needs information-dependent organizations using modern technology. The University’s programs have been preparing professionals for rapid advances in information and technology, intense global competition, and increasingly complex technological environments for decades. The **B.S. in Aviation Professional Pilot** will contribute to that legacy and will allow students to elevate their skills and careers to the next level as a commercial pilot.

The proposed **B.S. in Aviation Professional Pilot** is fully supported by the University's Vision 2025 and Strategic Plan 2017-2025. Funding to support the degree has been included in forecasted budgets going forward.

If approved, the new **B.S. in Aviation Professional Pilot** will use the Capitol Technology University's Information Literacy Path in the same manner as all of the other degrees at the institution. Information Literacy is infused in to the University's curriculum and the undergraduate experience. Capitol Technology University's Information Literacy Path begins during Orientation and Freshman Seminar. The experience continues every semester through the university's Writing Across the Curriculum program where there are writing assignments in all courses -- some of which require significant research. During the Freshman year, students are required to take English Communications I (EN-101) and English Communications II (EN-102). Both courses have a series of writing assignments that begin during Week 1 and continue to Week 16 of the semester. In addition to examining literature, EN-102 requires a team project in global research. There are two other courses that are required by every degree at the University: Ethics (SS-351) and Arts and Ideas (HU-331). Both courses are focused on research and experiential learning. All students also have access to information videos on the University's portal that support Information Literacy through the University Library. All students at the University will experience all the markers in the Information Literacy Path regardless of learning modality (i.e., online, on ground, and hybrid).

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

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

Capitol Technology University will support the proposed program through the same process and level of support as the University's existing programs. Many of the program's courses already exist within other programs in the university. The University has also budgeted funds to support program and course development, online support, office materials, travel, professional development, and initial marketing. There is no substantial impact to the institution due to the advanced budgeting of these funds. If approved, the program is expected to be self-sustaining going forward.

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

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

The proposed degree is an integral part of the University's Strategic Plan for FY 2017-2025 and forward. Funding for the administrative, financial, and technical support of the new



degree has been included in the institutional and departmental budgets for FY 2019-2020 as well as the forecasted budgets going forward.

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

Capitol Technology University is fully committed to continuing the proposed **B.S. in Aviation Professional Pilot** degree program for a sufficient period to allow enrolled students to complete the program.

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

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

- a. The need for advancement and evolution of knowledge.**

Our nation, state, and society are faced with an urgent need to provide professional commercial pilots to support the growing demand in aviation. Capitol Technology University believes it is imperative to position the state of Maryland to take advantage of this urgent need, rather than standing on the sidelines while there is a nationwide demand for properly educated and trained professional commercial pilots.

Passenger and cargo airlines around the world are expected to buy 42,700 new airliners between 2018 and 2037. They will need 637,000 new pilots to fly them, according to a forecast from Boeing. That staggering figure is matched only by how many will leave the profession in the next decade -- particularly in the U.S.

Pilot retirements will start to rise precipitously starting in 2021 as current pilots turn 65, the mandated age of retirement. More than 42% of active U.S. airline pilots at the biggest carriers will retire over the next 10 years, about 22,000, according to a recent report by Cowen & Company. In the next 20 years, Boeing estimates airlines in North America are going to need 117,000 new pilots. The coming retirements exceed the active U.S. regional airline pilot contingent, which stands around 19,000.

(Source: <https://www.boeing.com/commercial/market/commercial-market-outlook/>)

(Source: <https://www.mba.aero/the-pilot-shortage-a-current-and-future-threat-mba-insight-series/>)

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

Capitol Technology University is a diverse multiethnic and multiracial institution with a long history of serving minority populations. The University has a 51% minority student population with 7% undisclosed. The Black/African American population is 34%. The university has military/veteran population of 22%. The University also has a 22% female population – a significant percentage given its status as a technology institution. If approved,

the proposed **B.S. in Aviation Professional Pilot** will expand the field of opportunities for minorities and disadvantaged students.

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

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

Given the substantial minority population of Capitol Technology University, it is reasonable to assert that the **B.S. in Aviation Professional Pilot** program will add to this base of minority participation in the commercial pilot ranks and aviation industry.

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

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

1. Access
2. Success
3. Innovation

**Goal 1: Access**

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

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

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

The University’s commitment to diversity is reflected in its student body. Capitol Technology University has a 51% minority student population with 7% undisclosed. The Black/African American population is 34%. The university has military/veteran population of 22%. The university also has a 22% female population – a significant percentage given its status as a technology university.

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

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

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

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

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

The proposed **B.S. in Aviation Professional Pilot** program and University financial aid will be available to all Maryland residents who qualify academically for admission.

The **B.S. in Aviation Professional Pilot** program, with its academic rigor, will produce commercial pilots and aviation professionals for this critical field of study and employment. The University has a proven record of rigorous high-quality education. The University is fully accredited by three accrediting organizations. In addition to regional accreditation from the Middle States Commission on Higher Education (MSCHE), the University also has specialized accreditation from the International Accreditation Council of Business Education (IACBE) and Accreditation Board for Engineering and Technology (ABET). The **B.S. in Aviation Professional Pilot** program is consistent with the MSCHE criteria for regional accreditation of the delivery of high quality higher education.

### Goal 2: Success

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

The courses for the **B.S. in Aviation Professional Pilot** will be offered both “on ground” in a traditional classroom at the University campus, online using the Canvas Learning Management System and Zoom, and at the Montgomery Airpark in Gaithersburg, Maryland. The University provides a tuition structure that is competitive with its competitors. The University tuition structure does not differentiate between in-state and out-of-state students.

Student services are designed to provide advising, tutoring, virtual job fair attendance, and other activities supporting student completion and employment for both on-ground and online students.

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

The University's tuition increases have not exceeded 3%. The University also has a tuition guarantee for undergraduates, which means full-time tuition is guaranteed not to increase more than 1% per year at the rate applied at time of enrollment. The tuition remains at this rate if the student remains enrolled full-time without a break in attendance.

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

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

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

### **Goal 3: Innovation**

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

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

University designs curriculum in alliance with its accreditation and regulating organizations and agencies.

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

Example: The University engages its students in 'fusion' projects, which allows students to contribute their skills in interdisciplinary projects such as those in our Astronautical Engineering and Cyber Labs. In those labs, students become designers, builders, and project managers (e.g., to send a CubeSAT on a NASA rocket) and data analysts (e.g., to analyze rainforest data for NASA). The University's students recently launched another satellite aboard a NASA rocket from a location in Norway at the beginning of the 2019 Fall Semester. We are also recruiting additional partners for this proposed **B.S. in Aviation Professional Pilot** for which real-world professional pilot projects will provide students integrative learning opportunities.

The University also supports prior learning assessment. Portfolio analysis is available. The University accepts professional certifications for credit for specific courses. In addition, the University allows students to take a competency exam for credit for required courses up to the current state limits.

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

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

Opportunities exist at all levels of government, private industry, and cross-sector organizations for professionals with the proposed **B.S. in Aviation Professional Pilot**. Graduates with the **B.S. in Aviation Professional Pilot** will be expected to fill entry-level commercial pilot positions in existing government organizations and commercial companies with titles such as:

- Airline First Officer
- Cargo First Officer
- Corporate Pilot
- Co-Pilot – Heavy Jet
- Supervisory Aircraft Pilot
- Instructor Pilot
- Fire Pilot
- Corporate/Airline Safety – Pilot
- Quick Response Pilot
- Fixed Wing Pilot – Air Medical
- Military Fixed Wing Pilot

Graduates will also possess the required knowledge as a professional pilot to serve as a subject matter expert and form their own commercial company.

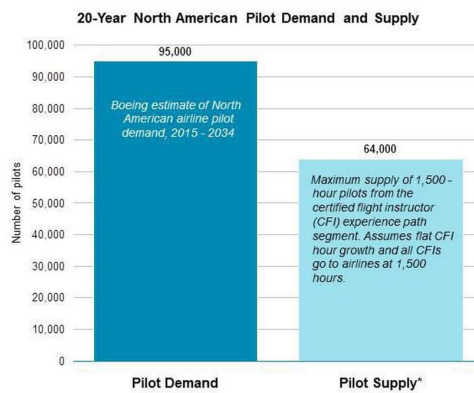
## 2. Present data and analysis projecting market demand and the availability of openings in a job market to be served by the new program.

The urgent need for more properly trained professional commercial pilots was described in an article in Forbes by Brian Prentice and Phillippe Gouel.

U.S. airlines are in the early stages of a pilot shortage that could boost labor costs and even constrain growth. Unless airlines find ways to work with partners to cultivate a pilot pipeline, they could face difficult, even volatile, competition for experienced pilots because the current regulatory and industry situation can only yield about two-thirds of the pilots the U.S. will need in the next 20 years. That could mean constrained airline revenue, higher fares, or both. Kids, get your pilots licenses, because this could be the career of the 2020s and 30s.

The pilot profession is highly regulated to drive a high level of safety, with laws dictating the level of experience and proficiency a pilot must acquire before flying a commercial aircraft, as well as when and how a professional pilot may work. This constrained environment has always made it difficult for the industry to meet the ebbs and flows of demand. New regulations further constrain the availability of new pilots. Now, as demand for air travel grows rapidly, (global commercial airline capacity rose more than 6 percent last year, according to Oliver Wyman's Airline Economic Analysis) many aviation insiders see the number of pilots in training and the future demand for commercial pilots diverging.

Leading airline executives are considering a new approach to the problem by forming partnerships with operators, training providers, and even regulators to shape the pipeline of pilots in training. Some major carriers and large regional airlines are well positioned to exploit these opportunities.



Source: Boeing and Oliver Wyman analysis

© Oliver Wyman

Becoming a commercial airline pilot is a time-intensive process that requires academic instruction, flight experience, numerous certifications and, typically, a progression of different flight-related jobs to gain the right experience. In the past, commercial pilots needed at least 250 flight hours, which takes at least six months and can cost up to \$100,000. U.S. pilots have traditionally absorbed these costs themselves, sometimes by combining the training with college degree programs. Prior to August 2013, pilots who had completed this stage of training were eligible to become U.S. commercial airline co-pilots. Outside of the U.S., many international airlines sponsor student pilots and either pay for this training or offer loans with favorable terms associated with future employment at the sponsoring airline.

New regulations introduced in 2013, designed to increase pilot proficiency, mandate that co-pilots working for commercial airlines hold airline transport pilot (ATP) certificates. This typically requires 1,500 flight hours and other experience gained by working at lower-paying pilot jobs. These new regulations make commercial airlines dependent on a set of aviation segments that provide the necessary experience but that are not elastic to growth in demand by the airlines and other career-employment companies. Even a perfectly efficient system could only provide the experience required for two-thirds of the pilots needed in the U.S.

The effect of the new regulations is further compounded by the fact that, according to the U.S. Government Accountability Office, the military, traditionally the largest source of airline pilots, now accounts for only 30 percent of new airline pilots. Further, the supply of military pilots will likely continue to shrink as military branches roll out programs to incentivize pilots to stay longer.

As the pilot career pipeline becomes constrained, the commercial airline industry's demand for pilots is rising. Oliver Wyman's 2016-2026 Global Fleet & MRO Market Forecast expects the number of commercial aircraft in service in the U.S. to rise 7.7 percent during the next 20 years to 8,067. The forecast expects the number of commercial aircraft in the global fleet to rise 40 percent to 34,437 aircraft. Airlines are adding more airplanes just as a wave of pilots nears retirement and regulations on pilot duty times have tightened. The industry's appetite for new ATP-rated pilots is at an all-time high, and Boeing Co. estimates U.S. airlines will demand about 95,000 pilots in the next 20 years.

Of course, U.S. pilots also fly for international airlines and corporate fractional flight operations, further boosting demand. Europe is expected to need 95,000 pilots, and Asia will likely need 226,000.

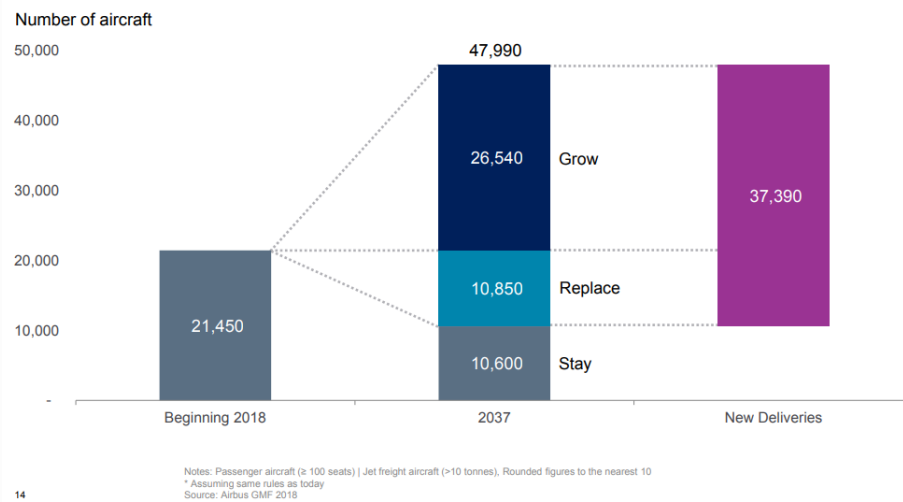
In 2018, the outcry to address the pilot shortage was even louder. The urgent need for more properly trained Aviation Professional Pilot professionals grew even larger. Discussion of the looming pilot crisis was not new, but the major corporations in aviation were beginning to see just how damaging it will be for all sectors of aviation around the globe.

It comes at a time when demand for new pilots is expected to rise dramatically over the next two decades as a result of new aircraft entering the global fleet. Boeing has projected that aviation will need 790,000 new pilots by 2037 to meet growing demand, with 96,000 pilots needed to support the business aviation sector.

(Source: <https://www.boeing.com/commercial/market/pilot-technician-outlook/2018-pilot-outlook/> )

At the Farnborough Air Show, Airbus estimated demand at 450,000 pilots by 2035. Even with Airbus' more conservative number, the gap between demand and supply is vast.

### The world fleet will more than double over the next 20 years



(Source: <https://www.airbus.com/aircraft/market/global-market-forecast.html>)

Each of the Airbus and Boeing aircraft will require pilot crews of 2 or 3 pilots per aircraft. Many will require greater numbers because long-haul flights last longer than the allowed duty day for pilots; thereby, needing rotating shift of pilots.

Bob Seidel, an experienced pilot and CEO of air charters company Alerion Aviation, says the pilot shortage also threatens private aviation. Higher standards pit private and business aviation against commercial airlines, all competing for a dwindling pool of qualified pilots. Private aviation relies on the most experienced pilots, who can also offer VIP passengers the personal attention they expect. These pilots have to work flexible hours to meet on-demand schedules. While these coveted pilots have traditionally been among the highest paid, they are now moving to commercial airlines that offer higher salaries and benefits private jet operators can't match.

“We both draw from the same sources for pilots,” Seidel says. “A number of dynamics that have occurred on the commercial side, and a number of social economic issues have occurred over the past 30 years, including the demographics of society, including aging. Baby Boomer pilots who are the largest number — almost 50% of the pilots flying today — are about to retire. And over the next 20 years, [commercial] passengers are going to double. Private travel is growing probably at a faster rate than commercial travel is growing. Compounding this issue is that airlines have been forced to seek people with higher levels of experience.



(Source: <https://www.forbes.com/sites/marisagarcia/2018/07/27/a-perfect-storm-pilot-shortage-threatens-global-aviation-even-private-jets/#2cd12be11549>)

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

Boeing is the world’s largest producer of Airliners, and every year they take an objective look at the future of the airline business. This report is called Boeing’s Commercial Market Outlook and it is based on current firm orders for its aircraft. The Commercial Market Outlook is the single most accurate projection of what the airline industry is going to be for the next 20 years.

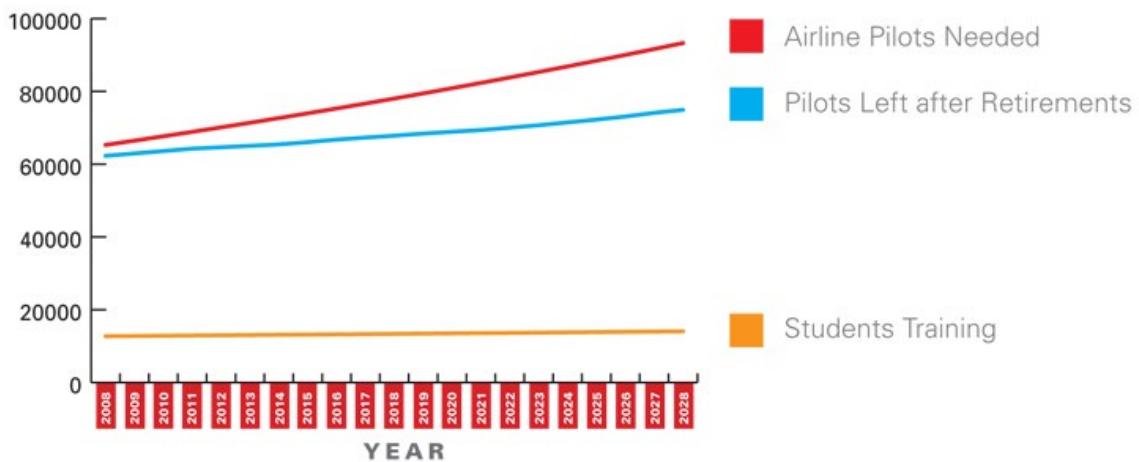
In the latest edition of the Outlook, Boeing states:

Over the past 20 years, air travel grew by an average of 4.8 percent each year. This was despite two major world recessions, major terrorist acts, the Asian financial crisis of 1997, the severe acute respiratory syndrome (SARS) outbreak in 2003 and two Gulf wars. During 40 years of producing the Current Market Outlook, we have learned that the resilience of air transport growth comes from its importance to the livelihood of people around the world.

On average over the next 20 years, passenger travel will grow at 5.0 percent and cargo at 5.8 percent. The fastest growing economies will lead the transformation into a more geographically balanced market.

A record 31 percent of our forecast for airplanes with more than 100 seats is already on firm order (7,900 aircraft), so we have unprecedented visibility of future airplane requirements, giving more certainty to the shape of our forecast.

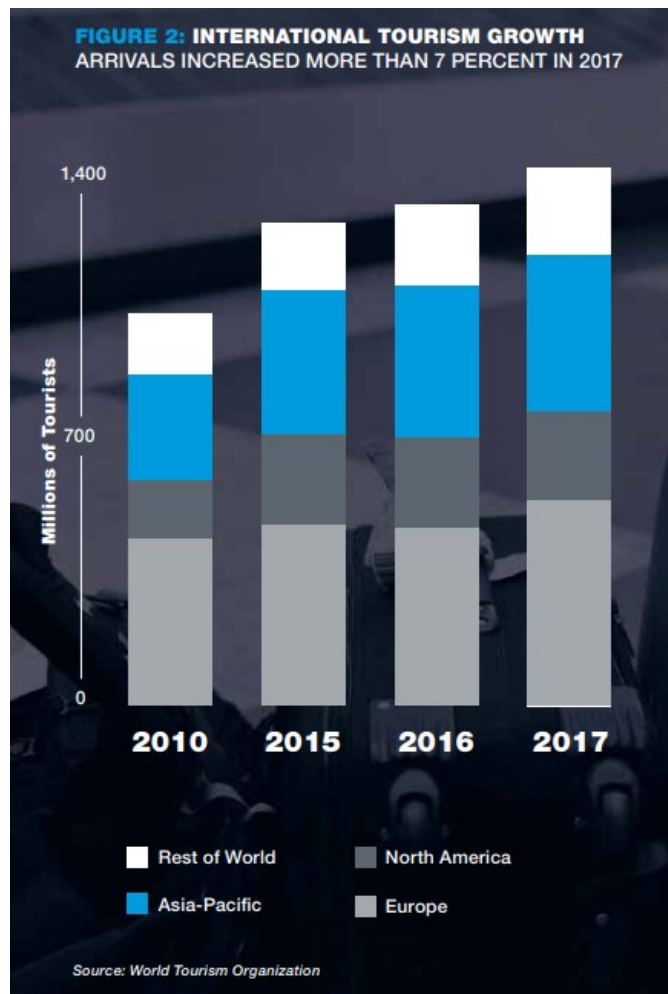
In order to meet demand, 19,000 pilots will need to be trained each year until 2026. Flight schools currently only train around 12,000 annually in the United States.



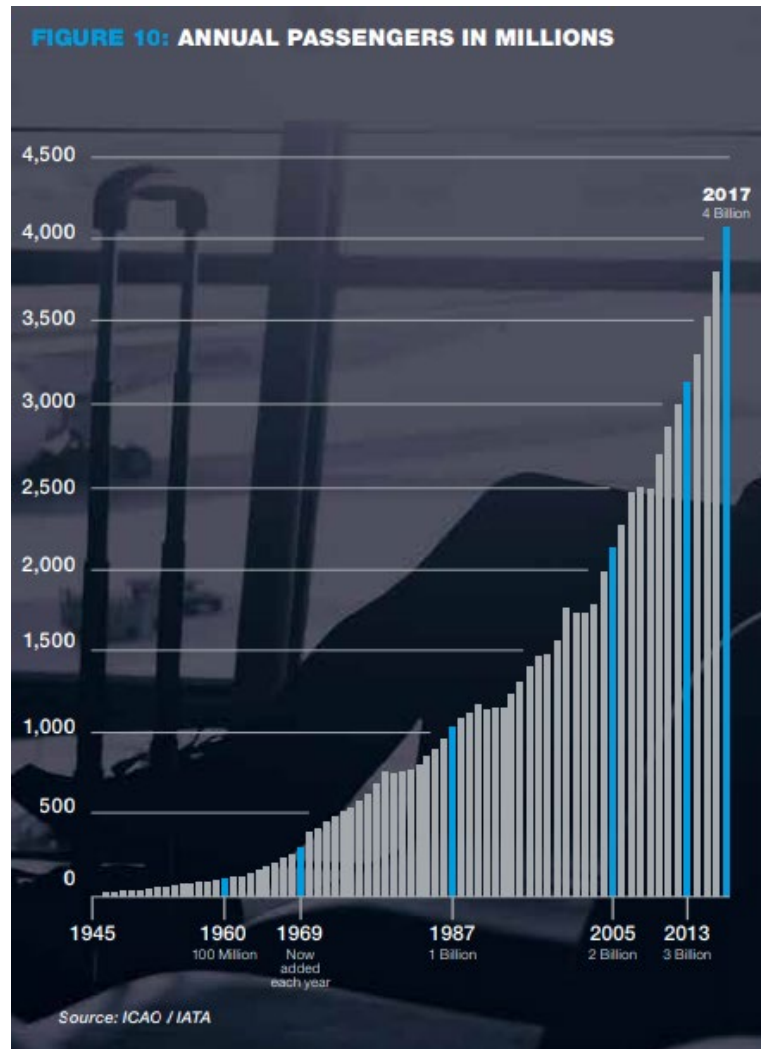
The three key demands that are shown in all forecasts include the underlying increase in demand for air travel, the changes in regulatory requirements, and evolving technology advancements.

Year-over-year traffic growth averaged 6.5 percent during the past five years, setting a pace that exceeded the long-term average of around 5 percent. Low air fares, higher living standards with a growing middle class in large emerging markets, the growth of tourism and travel relative to total consumer spending in major economies, and new airline business models are all driving this boom in air travel.

Within the services sector of the global economy, consumer spending on travel and tourism continues to grow. According to the World Tourism Organization, international tourist arrivals grew 7.1 percent in 2017, faster than overall GDP growth. Like air passenger traffic, overall tourism has grown substantially, with almost 350 million more international tourists in 2017 than 2010. This trend is projected to continue, with the direct contribution of tourism and travel to global GDP expected to grow 4 percent per year in real terms in the next 10 years, according to the World Tourism and Travel Council. The outlook for strong air travel demand is consistent with broad consumer demand trends and travel and tourism outlooks.



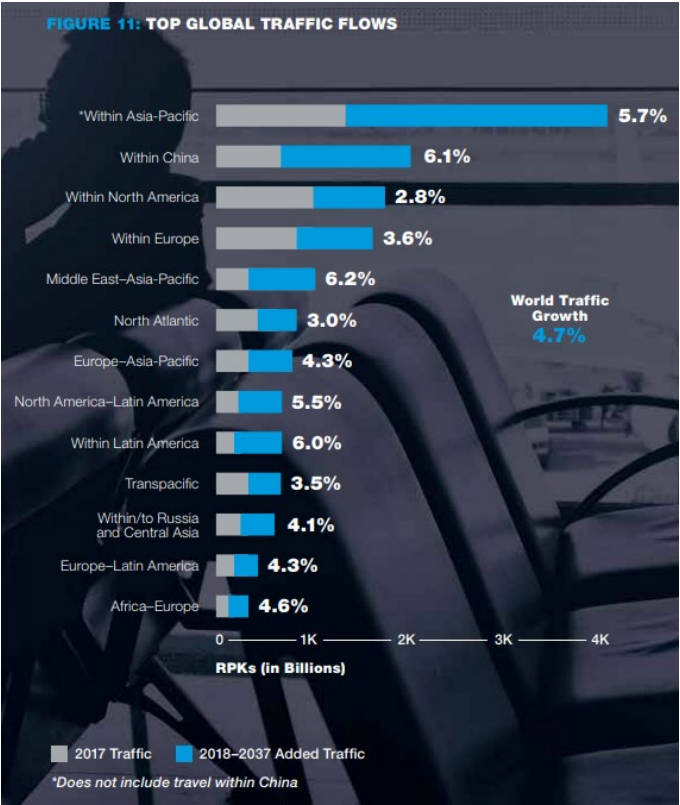
Air travel has proven to be a resilient market. Robust growth is expected to continue in the foreseeable future. As the industry evolved from its infancy in the 1940s through the dawn of the jet age, the number of passengers traveling annually grew from about 100 million in 1960 to just over 1 billion in 1987. It took 18 years to double to 2 billion passengers, and only 7 more years to grow to 3 billion. The upward trajectory is expected to continue.



Demand in the commercial market is forecast to more than double in the next two decades. To meet this demand, the number of jet airplanes will nearly double to 48,000, at an average annual growth rate of 3.5 percent. To support this fleet growth, Boeing forecasts a need for more than 42,700 new deliveries, valued at over \$6 trillion, for growth and replacement in the next 20 years. Single-aisle airplanes command the largest share of new deliveries at more than 70 percent, with airlines needing more than 31,300 in the next 20 years. These new airplanes will continue to stimulate growth and provide required replacements for older, less-efficient airplanes. In addition, more than 9,000 new

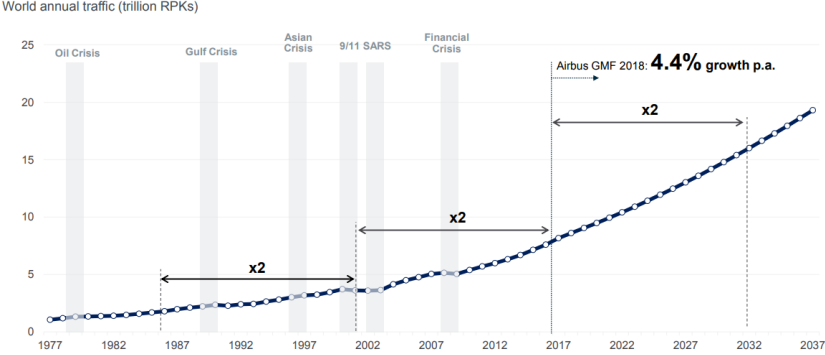
wide-body airplanes will be delivered, allowing airlines to serve new markets—passenger and car - go—more efficiently than in the past.

In light of the above factors, we view recent performance as evidence of real demand, not a bubble prone to burst in subsequent years. Our forecast traffic growth remains healthy, with an average RPK growth rate of 4.7 percent per year over 20 years.



All of the forecasts and data predict tremendous growth and opportunities for commercial pilots. Given the high demand for pilots and growing shortage, commercial pilots will have a rewarding future and career.

**Traffic has proven to be resilient to external shocks and doubles every 15 years**



RPK = Revenue Passenger Kilometer  
Source: ICAO, Airbus GMF 2018



(Source: <https://www.airbus.com/aircraft/market/global-market-forecast.html> )

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

There are approximately 100 collegiate level degree programs in the United States and Canada that are focused on training commercial pilots. These programs currently graduate approximately 3,300 commercial pilots per year according to the University Aviation Association. The U.S. Department of Labor states there are approximately 4,400 commercial pilot opportunities per year (<https://www.bls.gov/ooh/transportation-and-material-moving/airline-and-commercial-pilots.htm>). If approved, the **B.S. in Aviation Professional Pilot** will produce graduates with the required knowledge, skills, and training as a commercial pilot to help fill the growing pilot shortage.

### D. Reasonableness of Program Duplication

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

There is currently only one four-year baccalaureate degree program for professional pilots in Maryland. The University of Maryland Eastern Shore (UMES) has a B.S in Aviation Science with a Professional Pilot concentration. Many similarities exist between the Capitol Technology University's proposed **B.S. in Aviation Professional Pilot** degree and the UMES program given the General Education requirements for undergraduates specified by COMAR and the FAA regulations that dictate exactly how professional pilot training must be conducted. The University chose to propose a second aviation professional pilot degree in the State of Maryland only after careful consideration of the following factors:

- Extremely high demand for professional pilots by the military and industry for the foreseeable future
- Locating a FAA Part 141 approved pilot training school that is 163 miles away and three hours driving time from UMES' flight school on the Eastern Shore
- Significant institutional differences between both universities (e.g., public versus private, low cost versus high cost, large versus very small student populations, Eastern Shore flight school versus Northwestern Montgomery County flight school, etc.)
- Different target student populations (i.e., UMES mostly draws students from various parts of Maryland, Delaware, and Eastern Shore Virginia while Capitol Tech plans to target international students who travel to the U.S. specifically for pilot training at the Washington International Flight Academy)

Capitol Technology University believes a second aviation professional pilot bachelor's degree in the State of Maryland is feasible and supportable for both institutions given the four factors above. Washington International Flight Academy has a long history of recruiting and training international students to be professional pilots. Both WIFA and Capitol Technology University believe a significant percentage of those students would be interested in staying longer to receive a bachelor's degree if it is focused on the commercial pilot profession in the aviation industry and provided at WIFA.

## 2. Provide justification for the proposed program.

The **B.S. in Aviation Professional Pilot** program is strongly aligned with the University's strategic priorities and is supported by adequate resources. The new **B.S. in Aviation Professional Pilot** degree will strengthen and expand upon existing technology, management, and applied engineering degree programs at the University. The degree will present study in a rapidly changing and highly complex discipline. Research shows a significant shortage of commercial pilots now and in the future. This program helps fill the gap. There is a thorough discussion of the need in sections B and C of this document.

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

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

The University of Maryland Eastern Shore (UMES) has a B.S in Aviation Science with a Professional Pilot concentration. UMES reported to the Maryland Higher Education Commission that its B.S in Aviation Science (which includes four concentrations: Aviation Electronics, Aviation Management, Aviation Software, and Professional Pilot) had a total of 61 students in 2018. The data also shows UMES does have nine (9) very popular bachelor's programs with large enrollments of more than 100 students (up to 291 students). However, the UMES B.S in Aviation Science program is not one. As a result, the program does not have a disproportionately large number of students selecting it as their major field of study (i.e., it is not a high-demand program as defined in court decisions).

Additionally, Capitol Technology University's believes its proposed **B.S. in Aviation Professional Pilot** program will not affect UMES' program given the following factors:

- Extremely high demand for professional pilots by the military and industry for the foreseeable future
- Capitol Technology University's FAA Part 141 approved pilot training school is 163 miles away and three hours driving time from UMES' flight school on the Eastern Shore
- Significant institutional differences between both universities (e.g., public versus private, low cost versus high cost, large versus very small student populations, Eastern Shore flight school versus Northwestern Montgomery County flight school, etc.)
- Different target student populations (i.e., UMES mostly draws students from various parts of Maryland, Delaware, and Eastern Shore Virginia while Capitol Tech plans to target international students who travel to the U.S. specifically for pilot training at the Washington International Flight Academy)

The Capitol Technology University chose to propose a second aviation professional pilot degree in the State of Maryland only after careful consideration of all the factors involved, including the potential effects on the UMES program. Capitol Technology University believes a second aviation professional pilot bachelor's degree in the State of Maryland is feasible and supportable for both institutions given the four factors above. Washington International Flight Academy (WIFA) has a long history of recruiting and training international students to be professional pilots. Both WIFA and Capitol Technology University believe a significant percentage of those international students would be interested in staying longer to receive a bachelor's degree if it is focused on the commercial pilot profession in the aviation industry and provided at WIFA at the Montgomery County Airpark in Gaithersburg, Maryland.

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

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

The University of Maryland Eastern Shore (UMES) has approximately 3,300 students of which 93% (~3,096 students) are undergraduates. UMES offers undergraduate degrees in 38 disciplines. One of those programs is a B.S in Aviation Science – a degree which includes four concentrations: Aviation Electronics, Aviation Management, Aviation Software, and Professional Pilot. UMES's B.S in Aviation Science with the Professional Pilot concentration is currently the only four-year professional pilot bachelor's degree program in the state. If Capitol Technology University's proposed **B.S. in Aviation Professional Pilot** program is approved, UMES will still have the distinction of offering the only public four-year professional pilot bachelor's degree program in the state.

UMES reported to the Maryland Higher Education Commission that its B.S in Aviation Science (which includes four concentrations: Aviation Electronics, Aviation Management, Aviation Software, and Professional Pilot) had a total of 61 students in 2018 – 2 percent of the approximately 3,096 undergraduate students. The data also shows UMES does have nine (9) very popular bachelor's programs with large enrollments of more than 100 students (up to 291 students). However, the UMES B.S in Aviation Science program is not one. As a result, the program does not have a disproportionately large number of students selecting it as their major field of study (i.e., it is not a high-demand program as defined in court decisions).

Additionally, Capitol Technology University's believes its proposed **B.S. in Aviation Professional Pilot** program will not affect UMES' program given the following factors:

- Extremely high demand for professional pilots by the military and industry for the foreseeable future
- Capitol Technology University's FAA Part 141 approved pilot training school is 163 miles away and three hours driving time from UMES' flight school on the Eastern Shore
- Significant institutional differences between both universities (e.g., public versus private, low cost versus high cost, large versus very small student populations, Eastern Shore flight school versus Northwestern Montgomery County flight school, etc.)
- Different target student populations (i.e., UMES mostly draws students from various parts of Maryland, Delaware, and Eastern Shore Virginia while Capitol Tech plans to target international students who travel to the U.S. specifically for pilot training at the Washington International Flight Academy)

The Capitol Technology University chose to propose a second aviation professional pilot degree in the State of Maryland only after careful consideration of all the factors involved, including the potential effects on the UMES program. Capitol Technology University believes a second aviation professional pilot bachelor's degree in the State of Maryland is feasible and supportable for both institutions given the four factors above. Washington International Flight Academy (WIFA) has a long history of recruiting and training international students to be professional pilots. Both WIFA and Capitol Technology University believe a significant percentage of those international students would be interested in staying longer to receive a bachelor's degree if it is focused on the commercial pilot profession in the aviation industry and provided at WIFA at the Montgomery County Airpark in Gaithersburg, Maryland.

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

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

The proposed program was established through a rigorous review of unmet needs by the University's New Programs Group. The group includes selected representation from the faculty, administrators, and the University's Executive Council. A diverse group of faculty will oversee the program; the faculty have backgrounds in aviation, unmanned and autonomous systems, astrophysics, aeronautical engineering, electrical engineering, mechanical engineering, cybersecurity, computer science, technology, and mathematics. Please see Section I for a detailed list of the faculty's backgrounds.

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

*Educational Objectives:*

- a. Students will critically analyze problems in a variety of disciplines to identify relevant and useful information to support the attainment of desired outcomes.
- b. Students will determine appropriate conclusions by examining the output of methodological applications in the aviation professional pilot environment.
- c. Students will conceptualize, apply, and integrate effective strategies to use information in the decision-making process as an aviation professional pilot.
- d. Students will apply knowledge in aviation to adapt to emerging aviation trends.
- e. Students will conduct themselves professionally and ethically.
- f. Students will understand and analyze the role of aviation safety and human factors in the aviation industry.
- g. Students will fly independently and safely operate airplanes for which they are rated.

*Learning Outcomes:*

Upon graduation:

- a. Graduates will demonstrate flight proficiency, safety, and procedural skills to obtain FAA licensure required to secure a position as a commercial pilot or flight instructor.
- b. Graduates will apply legal and ethical principles in their career as an aviation professional pilot.
- c. Graduates will apply knowledge of aeronautical principles, design characteristics, and operational limitations to operate aircraft safely in emergency conditions.
- d. Graduates will demonstrate traditional and technological techniques of communicating ideas effectively and persuasively.
- e. Graduates will demonstrate leadership, teamwork, and managerial skills in their assigned aircraft and within the aviation industry.
- f. Graduates will be able to analyze and assess airline regulations, airport operations, government regulations, safety requirements, and environmental concerns to plan and implement appropriate actions as an aviation professional pilot.



### 3. Explain how the institution will:

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

Capitol Technology University will assess student achievement of the learning outcomes per the regulations specified two of the university's accreditation organization: Middle States Commission on Higher Education (MSCHE) and the Federal Aviation Administration (FAA) Airman Certification Standards (ACS).

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

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

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

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

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

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

- g. improving key indicators of student success, such as retention, graduation, transfer, and placement rates;
- h. implementing other processes and procedures designed to improve educational programs and services;

4. if applicable, adequate and appropriate institutional review and approval of assessment services designed, delivered, or assessed by third-party providers; and

5. periodic assessment of the effectiveness of assessment processes utilized by the institution for the improvement of educational effectiveness.

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

The University will also use FAA Airman Certification Standards (ACS) to assess student achievement of the learning outcomes in the program. The FAA ACS is an integrated approach of standards for pilot knowledge and practical skills. The FAA ACS provides a single-source set of standards for both the knowledge tests and the practical tests. The ACS provides a clear, easy-to-use “flight plan” for the material the FAA expects an applicant to know (knowledge), consider (risk management), and do (skill) to qualify for an airman certificate or rating. The FAA ACS replaced the PTS for Private Pilot Airplane (PAR) and Instrument Rating Airplane (IRA) on June 15, 2016, and Commercial Pilot Airplane (CAX) on June 12, 2017. The following is an example from the FAA Commercial Pilot Airplane ACS CA.I.F.K2f:

I. Preflight Preparation	
<b>Task</b>	<b>F. Performance and Limitations</b>
<b>References</b>	FAA-H-8083-1, FAA-H-8083-2, FAA-H-8083-3, FAA-H-8083-25; POH/AFM
<b>Objective</b>	To determine that the applicant exhibits satisfactory knowledge, risk management, and skills associated with operating an aircraft safely within the parameters of its performance capabilities and limitations.
<b>Knowledge</b>	The applicant demonstrates understanding of:
CA.I.F.K1	Elements related to performance and limitations by explaining the use of charts, tables, and data to determine performance.
CA.I.F.K2	Factors affecting performance, to include:
CA.I.F.K2a	a. Atmospheric conditions
CA.I.F.K2b	b. Pilot technique
CA.I.F.K2c	c. Aircraft condition
CA.I.F.K2d	d. Airport environment
CA.I.F.K2e	e. Loading
CA.I.F.K2f	f. Weight and balance
CA.I.F.K3	Aerodynamics.
<b>Risk Management</b>	The applicant demonstrates the ability to identify, assess and mitigate risks, encompassing:
CA.I.F.R1	Inaccurate use of appropriate manufacturer's performance charts, tables, and data.
CA.I.F.R2	Exceeding aircraft limitations.
CA.I.F.R3	Possible differences between actual aircraft performance and published aircraft performance data.
<b>Skills</b>	The applicant demonstrates the ability to:
CA.I.F.S1	Compute the weight and balance, correct out-of-center of gravity (CG) loading errors and determine if the weight and balance remains within limits during all phases of flight.
CA.I.F.S2	Demonstrate use of the appropriate aircraft manufacturer's approved performance charts, tables, and data.

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

The University will document student achievement of the learning outcomes in the program in the same fashion as its current programs. The University will also publicly post the results of the assessment on its website.

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

*Program description, as it will appear in the catalog:*

The **Bachelor of Science (B.S.) degree in Aviation Professional Pilot** provides the student with the necessary knowledge and training to become an aviation professional in the diverse field of Aviation. The program addresses one of the greatest employment challenges of the 21st century – how to create enough professional pilots to fill the staggering number of jobs created in the aviation industry due to the burgeoning demand for commercial and airline pilots. The degree provides a firm foundation in flight operations, airport operations, safety, risk management, Federal Aviation Administration (FAA) rules and regulations, aviation technologies, and piloting skills. Graduates of the program will have the knowledge, skills, and FAA certifications necessary to be employed as a commercial pilot by airlines, governmental agencies, or corporate employers.

*Description of program requirements:*

Entrance requirements: To be fully accepted into the program, students must be accepted to the University and be able to meet the FAA medical standards for flight training.

*Degree Requirements:*

The following is a list of courses for the **B.S. in Aviation Professional Pilot** degree. Students expecting to complete this degree must meet all prerequisites for the courses listed below.

**Bachelor of Science in Aviation Professional Pilot  
Courses**

**Total Credits: 120**

***AVIATION COMMERCIAL PILOT CORE – 70 CREDITS***

**AVT-101 Aviation History and Development (3 Credits)**

This course is an introduction to the history of aviation technology from its origins to the present day. It examines selected topics on flight within the Earth's atmosphere from a global perspective with emphasis on events in the United States. Overall, the course stresses the history of flight within the broader context of culture, economics, politics, society, technology, and international conflict through lecture, readings, video, writing assignments, and discussions. Prerequisite: None.

**AVT-141 Private Pilot Ground School (3 Credits)**

Introduction to basic principles of flight (basic aerodynamics), aircraft systems, performance, weight and balance, aviation physiology, federal air regulations, flight publications, basic meteorology, navigation, and cross country flight planning. Upon completion of this course, students will be prepared to take the FAA Private Pilot knowledge examination. Prerequisite: None.

**AVT-142 Private Pilot Flight - Airplane (3 Credits)**

Students must enroll in this course while pursuing a private pilot's certificate from an approved flight school. Course credits will be awarded upon receipt of a copy of the student's private pilot certificate. Prerequisite: AVT-141.

**AVT-143 Aviation Weather Services (4 Credits)**

Provides a detailed introduction to the environmental factors that are critical to safe flight operations. Includes the following: thermal patterns, horizontal and vertical motion, moisture clouds, precipitation, air masses, fronts, cyclones, thunderstorms and aviation hazards. Will also include meteorological flight planning, use of weather information systems, and reports and charts used for aviation weather reporting and forecasting. Prerequisite: AVT-141.

**AVT-201 Air Traffic Control Systems (3 Credits)**

This course provides an introduction to Air Traffic Control (ATC), the history, development, and structure of the National Airspace System (NAS). The student will explore navigation aids, ATC radar systems, terminal and enroute traffic control, flight service, weather facilities, airspace, and FAA regulations. Prerequisite: AVT-141.

**AVT-202 Air Traffic Control Operations (3 Credits)**

This course provides the student with an analysis of Air Traffic Control (ATC) regulatory flight publications including manuals, charts, advisory circulars and procedures. Topics include the Federal Aviation Administration (FAA) regulations, aeronautical information and agreements, Terminal Procedures (TERPS) publications and applicable FAA Orders. Corequisite: AVT-221.

**AVT-241 Instrument Pilot Ground School (3 Credits)**

An introduction to flight under IFR conditions. Course includes basic instrument flying, flight instruments, IFR charts and approach plate, IFR regulations and procedures, ATC clearances and IFR flight planning. Completion of the course will prepare the student for the Instrument Knowledge Exam. Prerequisite: AVT-142.

**AVT-242 Instrument Pilot Flight - Airplane (3 Credits)**

Students must enroll in this course while pursuing the Instrument certificate at an approved flight school. Credits will be awarded upon receipt of a copy of the student's instrument rating. Prerequisite: AVT-241.

**AVT-251 Air Transportation (3 Credits)**

This course provides an overview of the development of air transportation facilities, state and federal regulations, the Department of Transportation, the Federal Aviation Administration, the National Transportation Safety Board, and organization of commercial air transportation to include air carrier management, marketing, and pricing procedures. Prerequisite: None.

**AVT-256 Aviation Safety (3 Credits)**

This course will concentrate primarily on the major aspects of aviation safety and the organizations and processes that govern commercial and general aviation safety in the United States. This course will provide an introduction to aviation safety programs, risk management, and the associated components of pilot psychology, physiology, human factors, and accident review and investigation. It will also include an overview of modern techniques used in accident investigation. Prerequisite: None.

**AVT-253 Airport Management (3 Credits)**

This course provides an introduction to the planning, development, management, and operation of a modern airport including airport systems, federal and state regulations, environmental policy, operational safety, maintenance, and public relations. Prerequisite: None.

**AVT-254 Airline Management (3 Credits)**

This course exposes the student to the management and organizational structure of air carriers to include airline scheduling, fleet planning, airline economics and financing, air carrier labor relations. Prerequisite: None.

**AVT-301 Certified Flight Instructor Theory - Airplane (3 Credits)**

This course provides the theory of flight and ground instruction, aircraft performance, analysis of flight maneuvers, and other basic theory as needed by the airplane flight instructor. Prerequisite: AVT 242.

**AVT-311 Aircraft Systems and Components I - Introduction (3 Credits)**

Introduction to basic aircraft systems found on modern single and multi-engine reciprocating aircraft. Topics will include piston engines, electrical systems, hydraulic and pneumatic systems, radios and instruments, propellers, pressurization, maintenance requirements and documentation, and trouble shooting from the cockpit. Prerequisite: AVT-141.

**AVT-313 Aircraft Systems and Components II - Turbines and Aerodynamics (3 Credits)**

This course is a continuation of the systems found on modern reciprocation aircraft and introduces those of turbine-powered aircraft. Topics covered will include hydraulic and pneumatic systems, landing gear, brakes, environmental control, ice and rain protection, fire protection, aircraft turbine engines, and high-speed aerodynamics. High-speed aerodynamics includes the study of forces and the resulting motion of objects through the air to include compressibility effects, shock waves, and high-speed aerodynamics. Prerequisite: AVT-311.

**AVT-325 Crew Resource Management (3 Credits)**

This course will provide an in-depth study of Crew Resource Management (CRM) which involves having a thorough understanding of crew communications, teamwork, leadership, decision-making, and situational awareness. Included are CRM techniques designed for pilots and cabin crew of multi-crew operations as well as dispatchers, mechanics, and air traffic control personnel. Prerequisite: None.

**AVT-341 Commercial Pilot Ground School (3 Credits)**

Commercial Flight Maneuvers, Airplane Aerodynamics, Advanced Performance, Power plants (including fuel injection and turbo-charging), Environmental Control Systems and Retractable Landing Gear Systems will be taught. Also, airports (marking and lighting) will be reviewed. Advanced Weight and Balance, and Part 61, 91, 125, and 135 and NTSB 830 Commercial Pilot Regulations will build on the private pilot regulations learned earlier. High Altitude Physiology, and High Performance and Turbine-Aircraft Flight Operations will be emphasized. Prerequisite: AVT 242.

**AVT-342 Commercial Pilot Flight - Airplane Single Engine and Multi-Engine (3 Credits)**

Students must enroll in this course while pursuing the Multi-engine commercial certificate at an approved flight school. Credits will be awarded upon completion of the FAA Commercial Pilot Certificate and the Multi-Engine rating. Prerequisite: AVT-341.

**AVT-405 Aviation Law (3 credits)**

This course provides a detailed study of the regulations and procedures common to the aviation industry as well as a survey of the legal environment and the standards of conduct required of professional pilots. Case studies and discussion methods are used to show application of these statutes. Included is a study of latest legislation passed by the Congress and international conventions. Prerequisite: Senior standing.

**AVT-413 Electronic Flight Management Systems (3 credits)**

This course introduces the student to the concepts and functions of the electronic flight management system (FMS), a fundamental component of modern aircraft avionics. Topics include flight plans, GPS, INS, navigation, control display units, electronic flight instrument system, and navigation displays. Prerequisite: AVT-313.

**AVT-421 Global Navigation and NAVAIDS (3 Credits)**

Advanced navigation systems includes HSI, RMI, Loran, Doppler, VOR, NDB and GPS. Will include navigation theory, in-flight emergencies, electronic instrumentation, and advanced flight computing problems. Extensive use of in-class computer flight simulation will be exercised. Provides the radio navigation skills necessary for the instrument pilot. Prerequisite: AVT-241.

**AVT-457 Aviation Senior Project I (3 credits)**

Students/teams select a project area, develop an understanding of the project scope that includes research and documentation of related work, prepare a feasibility study, develop project requirements, propose solutions and multiple designs, analyze proposed designs, and select a final proposed design, and prepare and present a preliminary design review (PDR). Students are expected to apply proper aviation concepts and project management to their work. Additional components may be required in some projects. Students/teams submit a final report at the end of the semester. Prerequisite: Senior standing.

**AVT-458 Aviation Senior Project II (3 Credits)**

This is the aviation capstone course designed to challenge students as they work individually or in small teams on an aviation problem requiring technical expertise and aviation acumen. Drawing upon the course in technical report writing, students are required to submit a major report outlining and analyzing an aviation problem and proposing solutions.\*Note: Course must be completed with a grade of "C" or higher to meet undergraduate graduation requirements. AVT-457 should be taken immediately before this course. Prerequisites: AVT-457.

***UNMANNED AND AUTONOMOUS SYSTEMS – 6 CREDITS*****UAS-101 Intro to Unmanned and Autonomous Systems (3 Credits)**

This course presents an introduction to Unmanned and Autonomous Systems operations. This includes a historical perspective and background information of this system including its: modeling and control fundamentals, ground based systems, visual and electro-optical aspects of navigation, obstacle and terrain avoidance systems, modular on-board processing systems, and current applications. This course also exposes students to the significant regulations impacting unmanned systems operations. Prerequisite: None.

**UAS-102 Mechanics of Unmanned and Autonomous Systems (3 Credits)**

This course will provide the student an understanding of the component systems common to most Unmanned and Autonomous Systems with an emphasis on effective integration and operations. The course focuses on the core technologies and includes examinations of the control systems, power plants (motors), servos/ actuators, power sources, and communication technologies utilized in unmanned systems. Prerequisite: None.

***GENERAL EDUCATION – 41 CREDITS*****MATH AND SCIENCE COURSES – 20 CREDITS****CS-100 Introduction to Programming Logic (3 Credits)**

This course will introduce students to the various techniques used in programming logic. The purpose of this course is to build baseline skills in the building of logic for procedural and object oriented programming with minimal coding but with an in-depth approach to design. This course is an excellent choice for programming beginners that want to obtain a good foundation to program in various languages using various programming approaches. Corequisite: CS-101. Prerequisite: None.

**CS-101 Intro to Programming Logic Lab (1 Credit)**

This course is a one-credit lab for students enrolled in CS-100. Students will complete mini projects at the intermediate and advanced level in the lab based on CS-100 lecture concepts. Assignments are individual efforts. Corequisite: CS-100. Prerequisite: None.

**CS-130 Intro to Programming Using Java (3 Credits)**

Introduces students to the discipline, methodologies, and techniques of software development. The emphasis is on developing essential programming skills, an understanding of object-oriented design and good software engineering practices using the Java programming language. Program constructs include selection, looping, arrays, graphical output of data, the use of the standard Java class library, and construction of simple user-defined classes. Programming projects are assigned as part of the homework requirements. Prerequisite: MA-110. MA-112 or MA114.

**MA-112 Intermediate Algebra (3 Credits)**

Designed for students needing mathematical skills and concepts for MA-114 and MA-216. In this course students are introduced to equations and inequalities and learn the language of algebra and related functions, including polynomial, rational, exponential and logarithmic functions. Other topics include solving equations, inequalities and systems of linear equations; performing operations with real numbers, complex numbers and functions; constructing and analyzing graphs of functions; and using mathematical modeling to solve application problems. Prerequisite: MA-005 or placement test score.

**MA-114 Algebra and Trigonometry (4 Credits)**

Designed for students needing mathematical skills and concepts for MA-216; topics in this course are as follows. Algebra: basic operations on real and complex numbers, fractions, exponents and radicals. Determinates. Solution of linear, fractional, quadratic and system equations. Trigonometry: definition and identities, angular measurements, solving triangles, vectors, graphs and logarithms. Prerequisite: MA-112 or placement test score.

**MA-128 Introduction to Statistics (3 Credits)**

Probability: definitions, theorems, permutations and combinations. Binomial, hypergeometric, Poisson and normal distributions. Sampling distribution and central limit theorem, estimation and hypothesis testing. Prerequisite: MA-110, or MA-111, or MA-112.

**PH-201 General Physics I (3 Credits)**

Non calculus-based physics intended for credit in engineering technology courses. Mechanics: units, conversion factors: vector diagrams, translational equilibrium, friction, torque and rotational equilibrium: uniformly accelerated motion, projectiles: Newton's Law, work energy and power: kinetic and potential energy, conservation of energy: impulse and momentum. Heat: temperature scales, thermal properties of matter, heat and temperature change, heat and change of phase, physics of heat transfer; applications. Prerequisite: MA-114.

**ENGLISH, HUMANITIES, AND SOCIAL SCIENCE COURSES - 21 CREDITS****EN-101 English Communications I (3 Credits)**

This introductory college-level course focuses on effective oral and written communication skills and the development of analytical abilities through various reading and writing assignments. Students must demonstrate competence in writing mechanics, including grammar, sentence structure, logical content development, and research documentation through 2 essays and 2 research papers. Rhetorical modes may include description, comparison/contrast, narrative, and process analysis. Students are expected to develop effective oral communication skills through speeches. Group projects will develop effective team skills such as decision-making, time management, and cooperation. Prerequisites: acceptance based on placement test scores.

**EN-102 English Communications II (3 Credits)**

This sequel to EN-101 involves more sophisticated reading, writing, speaking, and research assignments. Students must demonstrate competence in writing mechanics, as well as advanced research skills, the ability to handle complex information, and effective team skills. Students write research papers: an information paper, a cause-and-effect paper, an argument paper, and a final research paper. Course includes group work. Presentations are required. Prerequisite: EN-101.

**HU-331 Arts and Ideas (3 Credits)**

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

**Humanities Elective #1 (3 Credits)****Humanities Elective #2 (3 Credits)****Humanities Elective #3 (3 Credits)****SS-351 Ethics (3 Credits)**

This course is designed to help students improve their ability to make ethical decisions. This is done by providing a framework that enables the student to identify, analyze, and resolve ethical



issues that arise when making decisions. Case analysis is a primary tool of this course. Prerequisite: EN-102.

### **Social Science Elective (3 Credits)**

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

The general education requirements meet or exceed the specifications in The Code of Maryland Regulations (COMAR). Please see Section G.4 to review the general education requirements for the proposed degree.

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

The program will be accredited regionally by Middle States Commission on Higher Education (MSCHE). The pilot courses taught at the Washington International Flight Academy are federally recognized by the Federal Aviation Administration. Students will receive certificates of Private Pilot, Instrument Pilot, Commercial Pilot, Multi-Engine Land Rating, and Flight Instructor Pilot directly from the FAA. Per FAA regulations, the Washington International Flight Academy uses the FAA Airman Certification Standards (ACS) to assess student achievement of the learning outcomes in the program. The FAA ACS is an integrated approach of standards for pilot knowledge and practical skills. The FAA ACS provides a single-source set of standards for both the knowledge tests and the practical tests. The ACS provides a clear, easy-to-use “flight plan” for the material the FAA expects an applicant to know (knowledge), consider (risk management), and do (skill) to qualify for an airman certificate or rating. The FAA ACS replaced the PTS for Private Pilot Airplane (PAR) and Instrument Rating Airplane (IRA) on June 15, 2016, and Commercial Pilot Airplane (CAX) on June 12, 2017.

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

The University has an agreement with the Washington International Flight Academy to provide pilot training at the Montgomery County Airpark in Gaithersburg, Maryland. A copy of the agreement is attached as Annex A to this document. The Washington International Flight Academy is an FAA approved pilot school under the Code of Federal Regulations, Title 14, Part 141.

**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 **B.S. in Aviation Professional Pilot** 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, aircraft, availability of academic support services and financial aid resources, and costs and payment policies.

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

The University's academic support services, financial aid resources, costs and payment policies, Learning Management System, are covered in the University Open Houses, application process, Welcome Aboard process, Orientation, Student Town Halls, and individual counseling.

- 7. 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 **B.S. in Aviation Professional Pilot** program's advertising, recruiting, and admissions materials will clearly and accurately represent the proposed program and the services available. The material for every new degree program is derived from the new program proposal approved by the Maryland Higher Education Commission.

#### **H. Adequacy of Articulation:**

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

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

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

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

All faculty listed below have been engaged with the University for at least several years. Dr. Antunes, LtCol. Ashmall, Dr. Bajracharya, Dr. Bajwa, Dr. Baker, and Dr. Butler are fulltime faculty members. Prof. Morgan and Prof. Weideman are professionally qualified given their significant years of experience and positions held in Aviation. Their resumes and curriculum vitae have reviewed and each one is deemed professionally qualified to teach their courses at this level. The University leadership is confident in the quality of the faculty and their abilities to provide a learning environment supportive of the University goals for student success. Additional doctorally-qualified faculty will be added as needed.

Instructors who will be engaged with the **B.S. in Aviation Professional Pilot** are:

INSTRUCTOR	BACKGROUND	COURSES ALIGNED TO BE TAUGHT
Dr. Alex Antunes Full time	Ph.D. Computational Astrophysics M.S. Astronomy B.S. Astronomy and Physics	All PH courses
Lt. Col. Soren Ashmall, USMC (Ret.) Full time	M.A. Broadcast Journalism B.A. Theatre MOS 3450 Planning, Programming, & Budget Systems Officer MOS 8055 Information Management Officer MOS 0202 Intelligence Officer MOS 2602 Signals Intelligence Officer/Ground Electronic Warfare Officer Licensed Real Estate Agent/REALTOR Facilities Security Officer, National Industrial Security Program (NISP)	All Liberal Arts and Humanities EN-101 EN-102
Dr. Garima Bajwa Full time	Ph.D. Computer Science and Engineering M.S. Electrical and Computer Engineering B.S. Electronics and Communication Engineering	All CS Courses
Dr. Hasna Banu Adjunct	Ph.D. Theoretical Physics M.S. Mathematics B.S. Mathematics	All MA Courses
Dr. Richard Baker Full time	Ph.D. Information Systems M.S. Computer Science B.S. Mathematics F-4 Weapons Systems Officer Private Pilot	All AVT and UAS Courses
Dr. Malcolm Beckett Adjunct	D.B.A. Quality Systems Management in Homeland Security and Defense M.S. Information Systems Management B.S. Criminal Justice CISSP PMP	CS-100, CS-101, and CS-130
Dr. William Butler Full time	D.Sc. Cybersecurity M.S. Strategic Studies B.S. Computer Science NSTISSI No. 4011 CNSSI No. 4012 NSTISSI No. 4015 CNSSI No. 4016	All CS Courses
Dr. Jami Carroll Adjunct	D.Sc. Cybersecurity M.S. Network Security M.B.A. B.B.A.	All CS Courses

Dr. Emily Darraj Adjunct	D.Sc. Cybersecurity M.S. E-Commerce Security B.A. Liberal Arts, English CICISO	All CS Courses
Dr. Raymond Letteer Adjunct	D.Sc. Cyber Security M.S. Network Security/Information Assurance B.A. Political Science A.A.S. Communications Technology	All CS Courses
Mr. Sam Morgan III Adjunct	M.S. Aerospace, Aeronautical, & Astronautical Engineering B.G.S. General Studies MQ-1 Predator Pilot MQ-9 Reaper Instructor Pilot A-10 Instructor/Evaluator Pilot F-16 Maintenance Officer Military Pilot (T-37, T-38)	All AVT and UAS Courses
Dr. Mark Moss Adjunct	Ph.D. Computer Science M.S. Computer Science B.S. Mathematics	All CS Courses
Pamela Opeka Full time	M.Ed. Curriculum and Instruction B.S. Biology and Chemistry	MA-112, MA-114, MA-128
Mr. Mark Opeka Adjunct	Ph.D. Materials Engineering M.S. Materials Engineering B.S. Mechanical Engineering	All PH Courses
Dr. Alexander Perry Adjunct	D.Sc. Cybersecurity M.S. Applied and Computational Mathematics B.S. Applied Mathematics CISSP	All CS Courses All Math Courses
Prof. Nathan Weideman Adjunct	M.S. Astronautical Engineering B.S. Professional Aeronautics	All AVT Courses
Multiple FAA Certified Flight Instructors	Washington International Flight Academy	All AVT Flight and Ground School Courses

Additional doctorally-qualified faculty will also be added in the near future.

**ADDITIONAL JUSTIFICATION FOR KEY AVIATION FACULTY:**

Capitol Technology University’s instructors for this program are leading experts in the aviation field:

- a. Prior to joining Capitol Technology University, Dr. Richard Baker served as the Chair of Indiana State University’s Department of Aviation Technology and the Director of Indiana State University’s Center for Unmanned Systems and Human Capital Development. Baker holds a bachelor’s degree in Mathematics and master’s degree in Computer Science from Indiana State

University. He received his doctorate in Information Systems from Nova Southeastern University. Dr. Baker was instrumental in the successful launch of ISU's Center for Unmanned Systems and directs the research and collaboration efforts with strategic partners. Dr. Baker brings many years of executive level experience in Information Technology (IT) from companies such as General Motors and Electronic Data Systems (EDS). Prior to entering the academic world, he also had extensive experience in the aviation industry. Dr. Baker served as the Director of Human Factors and Safety for American Airlines where his responsibilities included CRM and safety training for all pilots and flight attendants. He received professional certification in Risk Management from the Transportation Safety Institute. Dr. Baker retired as a Colonel from the Indiana National Guard in 2003 where he held command positions including Indiana State Director of Operations, Indiana State Director of Support, 181st Fight Wing Support Group Commander, 181st Mission Support Squadron Commander, and 181st Chief of Supply. During his tenure with the Air Guard, he was a Weapons Systems Officer in the F-4 and worked extensively with airspace issues, rapid response teams for counter-terrorism, the Counterdrug Operations at United States Joint Forces Command, and was a trainer for the Air National Guard's Domestic Preparedness Operations. Dr. Baker also holds a private pilot's license, instruments rating, and multi-engine rating.

- b. Prof. Sam Morgan III has served as the Director of Unmanned Systems and an Aviation Instructor at Indiana State University. Mr. Morgan has over 26 years of experience in aviation and unmanned systems. During his 24 years as a pilot in the United States Air Force, Mr. Morgan served as an A-10 Instructor/Evaluator Pilot, MQ-9 Reaper Instructor Pilot, MQ-1 Predator Pilot, F-16 Maintenance Officer, T-37/T-38 Pilot, Fight Safety Officer, Functional Check Flight Pilot, A-10 IP Flight Commander, Command Post Chief, Emergency Actions Controller, Airborne Jump-certified Battalion Air Liaison Officer, and Air Force ROTC Detachment Commander. He retired from active duty as a Colonel in the U.S. Air Force. Following his retirement from active duty, Mr. Morgan continued his work in aviation and unmanned systems as an instructor at Indiana State University.
- c. Prof. Weideman is professionally qualified given his significant years of experience and positions held in the aviation industry. He has served as an Aerospace Maintenance Duty Officer for the U.S. Navy for over the past 5 years. He also works with the Defense Threat Reduction Agency (DTRA) and U.S. Special Operations Command (USSOCOM) on aerospace issues for Counter Weapons of Mass Destruction (CWMD) efforts. His previous positions include directing Navy Reserve Aircraft Maintenance Modification and Overhaul for a C-130 squadron, Senior Technical Writer for Aviation, and Naval Analyst for Naval Aviation matters.

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

**a. Pedagogy that meets the needs of the students**

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

It was two Missouri State professors, historian Charles Bonwell and psychologist James Eison, who coined the term "active learning." In their 1991 book on the subject, *Active Learning: Creating Excitement in the Classroom*, they offered this

definition of the concept: “active learning involves students in doing things and thinking about the things they are doing.”

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

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

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

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

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

#### **b. The learning management system**

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

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

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

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

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

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

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

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

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

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

*Library Services:* The Puente Library offers extensive services and a wide collection for Capitol Technology University students to be academically successful. Library resources are available digitally. The library also provides a mailing service for materials borrowed through the Maryland system. The library is currently supporting the following degrees at the undergraduate level: B.S. in Astronautical Engineering, B.S. in Business Analytics and Data Sciences, B.S. in Computer Engineering, B.S. in Computer Engineering Technology, B.S. in Computer Science, B.S. in Construction Management and Critical Infrastructure, B.S. in Cyber Analytics, B.S. in Cybersecurity, B.S. in Electrical Engineering, B.S. in Electrical Engineering Technology, B.S. in Engineering Technology, B.S. in Management of Cyber and Information Technology, B.S. in Mechatronics Engineering, B.S. in Mechatronics and Robotics Engineering Technology, B.S. in Mobile Computing, B.S. in Software Engineering, and B.S. in Technology and Business Management, and B.S. in Unmanned and Autonomous Systems. The library is currently supporting the following degrees at the graduate level: M.S. in Aviation, M.S. in Aviation Cybersecurity, M.S. in Computer Science, M.S. in Critical Infrastructure, M.S. in Cyber Analytics, M.S. in Cybersecurity, M.S. in Engineering Technology, M.S. in Information Systems Management, M.S. in Internet Engineering, M.S. in Unmanned and Autonomous Systems Policy and Risk Management, M.B.A., T.M.B.A. Business Analytics and Data Science, T.M.B.A. in Cybersecurity, D.Sc. in Cybersecurity, Ph.D. in Aviation, Ph.D. in Business Analytics and Decision Sciences, Ph.D. in Critical Infrastructure, Ph.D. in Manufacturing, Ph.D. in Product Management, Ph.D. in Technology, Ph.D. in Technology/M.S. in Research Methods Combination Program, and Ph.D. in Unmanned Systems Applications. Therefore, the library is fully prepared to support a **B.S. in Aviation Professional Pilot**.

Services provided to online students include:

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

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

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



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

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

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

Pilot flight training and ground school will be provided by the Washington International Flight Academy (WIFA) at the Montgomery County Airpark in Gaithersburg, Maryland. However, no new facilities are required for the program on campus in Laurel, Maryland. The online class platform is web based and requires no additional equipment for the institution. The current Learning Management System, Canvas and Zoom, meets the needs of the degree program. The Business and Technology lab, Computer Science Lab, Cyber Lab, Robotics Lab, and Unmanned Systems Lab together meet the potential research needs of the students. The labs provide both local and virtual support.

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

**a. An institutional electronic mailing system**

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

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

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

Canvas provides the world's most robust LMS. It is a 21st Century LMS; Canvas is a native cloud, Amazon Web Service hosted system. The system is adaptable, reliable, and

customizable. Canvas is easy to use for students and faculty. The system is fully mobile and has proven to be time-saving when compared to other systems. The following list provides the features of the system:

#### Time and Effort Savings

- **CANVAS DATA**  
Canvas Data parses and aggregates more than 280 million rows of Canvas usage data generated daily.
- **CANVAS COMMONS**  
Canvas Commons makes sharing a whole lot easier.
- **SPEEDGRADER ANNOTATIONS**  
Preview student submissions and provide feedback all in one frame.
- **GRAPHIC ANALYTICS REPORTING ENGINE**  
Canvas Analytics help you turn rich learner data into meaningful insights to improve teaching and learning.
- **INTEGRATED MEDIA RECORDER**  
Record audio and video messages within Canvas.
- **OUTCOMES**  
Connect each learning outcome to a specific goal, so results are demonstrated in clearly measurable ways.
- **MOBILE ANNOTATION**  
Open, annotate, and submit assignments directly within the Canvas mobile app.
- **AUTOMATED TASKS**  
Course management is fast and easy with automated tasks.
- **NOTIFICATION PREFERENCES**  
Receive course updates when and where you want - by email, text message, even Twitter or LinkedIn.
- **EASE OF USE**  
A familiar, intuitive interface means most users already have the skills they need to navigate, learn, and use Canvas.
- **IOS AND ANDROID**  
Engage students in learning anytime, anywhere from any computer or mobile device with a Web-standard browser.
- **USER-CUSTOMIZABLE NAVIGATION**  
Canvas intelligently adds course navigation links as teachers create courses.
- **RSS SUPPORT**  
Pull feeds from external sites into courses and push out secure feeds for all course activities.
- **DOWNLOAD AND UPLOAD FILES**

Work in Canvas or work offline—it's up to you.

- **SPEEDGRADER**  
Grade assignments in half the time.

#### Student Engagement

- **ROBUST COURSE NOTIFICATIONS**  
Receive course updates when and where you want—by email, text message, and even Facebook.
- **PROFILE**  
Introduce yourself to classmates with a Canvas profile.
- **AUDIO AND VIDEO MESSAGES**  
Give better feedback and help students feel more connected with audio and video messages.
- **MULTIMEDIA INTEGRATIONS**  
Insert audio, video, text, images, and more at every learning contact point.
- **EMPOWER GROUPS WITH COLLABORATIVE WORKSPACES**  
By using the right technologies in the right ways, Canvas makes working together easier than ever.
- **MOBILE**  
Engage students in learning anytime, anywhere from iOS or Android, or any mobile device with a Web-standard browser.
- **TURN STUDENTS INTO CREATORS**  
Students can create and share audio, video, and more within assignments, discussions, and collaborative workspaces.
- **WEB CONFERENCING**  
Engage in synchronous online communication.
- **OPEN API**  
With its open API, Canvas easily integrates with your IT ecosystem.
- **BROWSER SUPPORT**  
Connect to Canvas from any Web-standard browser.
- **LTI INTEGRATIONS**  
Use the tools you want with LTI integrations.
- **MODERN WEB STANDARDS**  
Canvas is built using the same Web technologies that power sites like Google, Facebook, and Twitter.

#### Lossless Learning

- **CANVAS POLLS**  
Gauge comprehension and incorporate formative assessment without the need for “clicker” devices.

- **MAGICMARKER**  
Track in real-time how students are performing and demonstrating their learning.
- **QUIZ STATS**  
Analyze and improve individual assessments and quiz questions.
- **LEARNING MASTERY FOR STUDENTS**  
Empower students to take control of their learning.

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

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

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

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

**TABLE 1: RESOURCES**

<b>Resource Categories</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
1. Reallocated Funds	\$0	\$0	\$0	\$0	\$0
2. Tuition/Fee Revenue (c + g below)	\$445,355	\$1,068,083	\$1,530,659	\$2,266,955	\$2,600,475
a. Number of F/T Students	13	31	43	61	69
b. Annual tuition/Fee rate	\$26,003	\$26,393	\$26,789	\$27,191	\$27,871
c. Total F/T Revenue (a x b)	\$338,039	\$818,183	\$1,151,927	\$1,658,651	\$1,923,099
d. Number of P/T Students	11	25	37	58	63
e. Credit Hour Rate	\$813	\$833	\$853	\$874	\$896
f. Annual Credit Hour	12	12	12	12	12
g. Total P/T Revenue (d x e x f)	\$107,316	\$249,900	\$378,732	\$608,304	\$677,376
3. Grants, Contracts and Other External Sources	0	0	0	0	0
4. Other Sources	0	0	0	0	0
<b>TOTAL (Add 1 – 4)</b>	<b>\$445,355</b>	<b>\$1,068,083</b>	<b>\$1,530,659</b>	<b>\$2,266,955</b>	<b>\$2,600,475</b>

This proposal builds upon an existing degree programs.

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

**1. Reallocated Funds**

The University will not need to reallocate funds for the program.

**2. Tuition and Fee Revenue**

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

**3. Grants and Contracts**

There are currently no grants or contracts.

**4. Other Sources**

There are currently no other sources of funds.

**5. Total Year**

No additional explanation or comments needed.

**6. No additional explanation or comments needed.**

2. **Complete Table 2: Program Expenditures. Provide finance data for the first five years of program implementation. Enter figures into each cell and provide a total for each year.**

**TABLE 2: EXPENDITURES**

<b>Expenditure Category</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
1. Faculty (b + c below)	\$32,670	\$58,960	\$69,067	\$106,193	\$145,133
a. Number of FTE	2	3.5	4	6	8
b. Total Salary	\$27,392	\$49,133	\$57,556	\$88,494	\$120,944
c. Total Benefits (20% of salaries)	\$5,278	\$9,827	\$11,511	\$17,699	\$24,189
2. Admin Staff (b + c below)	\$4,798	\$5,090	\$5,243	\$5,374	\$5,508
a. Number of FTE	.07	.07	.07	.07	.07
b. Total Salary	\$4,084	\$4,207	\$4,333	\$4,441	\$4,552
c. Total Benefits	\$858	\$883	\$910	\$933	\$956
3. Support Staff (b + c below)	\$57,475	\$88,369	\$114,950	\$120,770	\$185,676
a. Number of FTE	1.00	1.5	1.75	2	3
b. Total Salary	\$47,500	\$73,032	\$83,125	\$99,810	\$153,450
c. Total Benefits	\$9,975	\$15,337	\$16,625	\$20,960	\$32,226
4. Technical Support and Equipment	\$1,440	\$3,640	\$5,600	\$8,925	\$10,560
5. Library	\$0	\$0	\$0	\$0	\$0
6. New or Renovated Space	\$0	\$0	\$0	\$0	\$0
7. Other Expenses	\$43,848	\$105,392	\$155,040	\$237,524	\$271,392
<b>TOTAL (ADD 1-7)</b>	<b>\$140,231</b>	<b>\$261,451</b>	<b>\$349,900</b>	<b>\$478,786</b>	<b>\$618,269</b>

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

**a. Faculty**

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

**b. Administrative Staff**

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

### **c. Support Staff**

Capitol Technology University will add additional support staff to facilitate the program.

### **d. Equipment**

Software for courses is available free to students or is freeware. Additional licenses for the LMS will be purchased by the University at the rate of \$60 per student in Year 1. The rate is estimated to increase by \$5 per year.

### **e. Library**

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

### **f. New or Renovated Space**

No new or renovated space is required.

### **g. Other Expenses**

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

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

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

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

#### Academic Year Assessment Events:

##### Fall Semester:

- At the August Faculty Retreat, the faculty reviews any outstanding student learning challenges that have not been adequately addressed. The issues are brought to the Academic Deans for review and development of implementation plans.
- Faculty submit performance plans consistent with the mission and goals of the University and department. The documents are reviewed and approved by the Academic Deans.
- Department Chairs and Academic Deans review the Graduating Student Survey data.
- Department Chairs and Academic Deans review student internship evaluations.
- Department Chairs and Academic Deans review grade distribution reports from the spring and summer semesters.
- Department Chairs and Academic Deans review student course evaluations from the Summer Semester.
- Departments conduct Industrial Advisory Board meetings to review academic curriculum recommendations. The Advisory Board meets to begin curriculum review or address special



issues that may arise related to curriculum. Based on an analysis and evaluation of the results, the Academic Deans, faculty and the advisory boards will develop the most effective strategy to move the changes forward.

- NOTE: A complete curriculum review for degrees occurs every 2 years. In most cases, the changes only require that the Academic Deans inform the University President and provide a report that includes a justification and the impact of the changes as well as a strategic plan. Significant changes normally require the approval of the Executive Council.
- The Academic Deans attend the Student Town Hall and review student feedback with Department Chairs.
- Department Chairs conduct interviews with potential employers at our Career Fair.
- Post-residency, the Academic Deans meet with the faculty to review the student learning progress and discuss needed changes.

Spring Semester:

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

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

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

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

*Student Learning Outcomes:*

Student learning outcomes for the proposed **B.S. in Aviation Professional Pilot** will be measured using the instruments identified in Section G and Section M as well as the assigned rubrics and assessment measures (e.g., capstone courses, competency exams/projects) dictated by the accreditation requirements of the University's regional accreditor [i.e., Middle States Commission in Higher Education (MSCHE)] and the FAA Airman Certification Standards (ACS). The FAA ACS is an integrated approach of standards for pilot knowledge and practical skills. The FAA ACS provides a single-source set of standards for both the knowledge tests and the practical tests. The ACS provides a clear, easy-to-use "flight plan" for the material the FAA expects an applicant to know (knowledge), consider (risk management), and do (skill) to qualify for an airman certificate or rating. The FAA ACS replaced the PTS for Private Pilot Airplane (PAR) and Instrument Rating Airplane (IRA) on June 15, 2016, and Commercial Pilot Airplane (CAX) on June 12, 2017. The program will be reviewed for accreditation by MSCHE. The University's partner, Washington International Flight Academy, is an FAA approved pilot school under the Code of Federal Regulations, Title 14, Part 141. The University is in good standing with all its accrediting bodies.

*Student Retention:*

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

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

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

*Student and Faculty Satisfaction:*

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

The Department Chairs and Academic Deans review the student evaluations for every course offered at the university. The Department Chairs and Academic Deans also review faculty satisfaction every semester. If changes are needed at the course level, the changes are developed and implemented by the faculty responsible for the courses upon approval of the Academic Deans. If changes are needed at the faculty level, the Department Chairs will make the changes. At the end of this cycle, an evaluation is repeated and the results are analyzed with the appropriate stakeholders regarding the effectiveness of the changes. This is an ongoing process.

*Cost Effectiveness:*

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

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

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

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

Capitol Technology University is a majority/minority school. Our programs attract a diverse set of students 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 **B.S. in Aviation Professional Pilot**.

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

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

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

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

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

Capitol Technology University is fully eligible to provide distance education. The University has a long history of providing high-quality distance education. The University is accredited regionally by the Middle States Commission in Higher Education (MSCHE) and through four

specialized accrediting organizations: International Accreditation Council of Business Education (IACBE), Accreditation Board for Engineering and Technology (ABET), NSA, and DHS. All five accrediting organizations have reviewed the University's distance education program as part of their accreditation process. Capitol Technology University is fully accredited by MSCHE, IACBE, ABET, NSA, and DHS. The University is in good standing with all its accrediting bodies.

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

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

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

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

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

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

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

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

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

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

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

boards are engaged in the monitoring of course quality to ensure quality standards are met regardless of the delivery platform.

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

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

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

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

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

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

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

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

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

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

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

The University has made the financial commitment to the program (please refer to Section L). The University has a proven track record of supporting degree completion.

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

Current faculty serve on internal advisory boards that examine possible for program changes, including course and program development. All faculty are selected on domain expertise and program-related teaching experience.

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

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

The assessment for online learning classes/students is the same as for all programs at the University. Faculty provide required data on student achievement. The Learning Management System provides data on student achievement. Proof of these assessments is available during the class and post class to the Academic Deans and Department Chairs. On an annual basis, the information is reported to the University's accreditation authorities such as MSCHE.

## **ANNEX A**



AGREEMENT TO PROVIDE AVIATION PILOT TRAINING

THIS AGREEMENT, made and entered into this \_\_\_\_ day of \_\_\_\_\_ in the year of \_\_\_\_\_ by and between CAPITOL TECHNOLOGY UNIVERSITY, hereinafter referred to as “CAPITOL,” and WASHINGTON INTERNATIONAL FLIGHT ACADEMY, hereinafter referred to as “WIFA.”

WITNESSETH THAT:

WHEREAS, CAPITOL has initiated within its university a Bachelor of Science (B.S.) in Aviation Professional Pilot degree program which will be available to the students of CAPITOL;

WHEREAS, WIFA owns and operates an incorporated aviation pilot training school with all the necessary instructors, aircraft, and supporting facilities;

WHEREAS, CAPITOL has proposed that WIFA conduct all ground school and flight training for CAPITOL’s B.S. in Aviation Professional Pilot degree program and participate in related cooperative education endeavors for CAPITOL students;

NOW, THEREFORE, for and in consideration of the mutual covenants herein contained the parties agree, as follows:

I. PILOT TRAINING:

WIFA shall provide to students of CAPITOL the ground and flight training at the place, price, quantity, and for the term indicated, subject to Terms and Conditions attached hereto and made a part hereof:

A. Type of Training \_\_\_\_\_

- Private Pilot License
- Instrument Rating
- Commercial Pilot License
- Certified Flight Instructor License





# CAPITOL

Technology University

Certified Flight Instructor Instrument Rating  
Commercial Pilot Multi Engine Added Rating  
Certified Flight Instructor Multi Engine Added Rating

B. Hours of Training and Costs:

The minimum required hours of flight and ground instruction are governed by Federal Aviation Regulations, Part 141 and any amendments thereto.

- (1) In the event of cost escalation, specifically with regards to fuel, WIFA reserves the right to amend costs should such occurrence arise. Notwithstanding the abovementioned, costs will be adjusted annually by WIFA and submitted to CAPITOL by August 1<sup>st</sup> one year in advance of the Academic Year of implementation (e.g., by August 1, 2019 for implementation on September 1, 2020. .
- (2) Flight training costs, agreed to in writing by both parties, will be specified in Addendum I to this contract. Changes to Addendum I will conform to the procedures and requirements specified in this Agreement and, when signed by both parties, will supersede the previous Addendum I while keeping the Agreement in full force and effect.

C. Aircraft Specification and Equipment:

FAA certified aircraft will be provided for flight training. Aircraft provided must be equipped with instrumentation and navigational equipment appropriate for the course of instruction. Some aircraft used for navigational training must provide training opportunities on state-of-the-art equipment to include ground-based navigation systems and GPS systems.

- (1) All flight instruction by WIFA for CAPITOL students will be in aircraft owned,



leased, and/or operated by said WIFA.

D. Instructors:

WIFA shall provide certificated flight instructors holding appropriate type and class ratings for the instruction being given. Quality of instruction standards must meet or exceed those specified in FAR Part 141.83 and any amendments thereto.

E. Supervision:

CAPITOL shall deem a CAPITOL instructor of record to oversee all applicable WIFA instructor records, student records, qualifications, and curriculum to ensure the quality and standardization of the flight training meets all regional and specialized accreditation requirements.

(1) WIFA will provide all instructors for pilot ground and flight training. WIFA will also maintain all instructor records, student training records, qualifications, and curriculum to ensure the quality and standardization of the pilot ground and flight training in accordance with all FAA regulations.

II. PAYMENT FOR INSTRUCTION:

CAPITOL will pay all ground and flight training fees for its students to WIFA under such terms and conditions as agreed to by the WIFA and CAPITOL in ADDENDUM I.

III. CONTRACTUAL TERMS:

The term of this agreement is from 1<sup>st</sup> day of \_\_\_\_ in the year of \_\_\_\_\_ to the last day of \_\_\_\_\_ in the year of \_\_\_\_\_. This Agreement renews each year for an additional one-year period unless terminated by one or both parties in writing.



IV. TERMINATION:

- A. CAPITOL reserves the right to terminate this contract upon serving written notice to the WIFA thirty (30) days prior to the date of termination. WIFA reserves the right to terminate this contract upon serving written notice to CAPITOL thirty (30) days prior to the date of termination.
  
- B. WIFA agrees to complete students enrolled in ground and flight courses should the contract be terminated. For the elimination of doubt, it is agreed upon that payments for all enrolled ground and flight training should be paid in full by Capitol regardless of the date of termination.
  
- C. In consideration for the mutual undertaking covered by this contract, CAPITOL has designated WIFA as a CAPITOL campus for pilot ground and flight training. CAPITOL will, to the maximum extent possible, make known to all students enrolled in pilot training the name and location of WIFA and its designation as CAPITOL recognized pilot ground and flight training provider.

VI. RELEASE OF LIABILITY:

WIFA hereby releases CAPITOL, its officers, agents, servants, and employees from any and all claims and liabilities of any type whatsoever for damage to, loss of, or destruction of any property of WIFA, its officers, or other party, and for the injury to or death of any person, firm, corporation, or other party, and for injury to or death of any students furnished by CAPITOL, and of any person or persons which may now or hereafter arise out of or result from or be in any way connected, directly or indirectly, with said training or the operation of the aircraft here under or performance of this agreement.



VII. INDEMNIFICATION:

WIFA further agrees to indemnify and save harmless CAPITOL, its officers, agents, and employees, from and against any and all claims and liabilities of any type whatsoever and for damage to, loss of, or destruction of any property of a person (including, but not limited to, WIFA's officers, agents, servants, and employees), firm, corporation and/or other party, and for injury to or death of any person or persons (including, but not limited to, CAPITOL's students and WIFA's officers, agents, servants, and employees) which may arise out of, or result from, or be in any way connected, directly or indirectly, with the performance of this agreement. This indemnity agreement shall extend also to any expense incurred by CAPITOL in the connection with the defense of any such claims contemplated herein.

VII. INSURANCE:

WIFA agrees to provide and maintain the following insurance coverage:

- A. In connection with the operation of aircraft and the performance of this contract, WIFA will provide and maintain insurance coverage while it is engaged to provide pilot ground school and flight training.
  
- B. WIFA shall procure and maintain at all times during the performance of service under this contract Aircraft Public Liability Insurance including coverage of liability to passengers against bodily injury and property damage. Such insurance shall be procured and maintained in limits of not less than One Million Dollars (\$1,000,000.00) combined single limit per occurrence per claim and One Million Dollars (\$1,000,000.00) aggregate single limit per occurrence.
  
- C. WIFA shall also provide premises liability insurance in an amount not less than One Million Dollars (\$1,000,000.00) combined single limit per occurrence per



claim and One Million Dollars (\$1,000,000.00) aggregate single limit occurrence. This required insurance coverage shall be carried under the terms and conditions which shall protect WIFA, CAPITOL, and the student trainee as well as WIFA's and CAPITOL's agents, servants, and employees.

- D. Each insurance policy evidencing this required insurance shall bear appropriate endorsements whereby the insurance carrier waives any rights of subrogation against CAPITOL by reason of any payment under such policy, and such policy shall further provide that CAPITOL will be given thirty (30) days prior notice before cancellation of such policy or reduction of coverage thereunder can be effective.
- E. WIFA shall, prior to initiation of ground school and flight instruction under this contract, submit to CAPITOL or its duly authorized representative, (1) a certified copy of the insurance policy actually procured and maintained, and (2) an insurance certificate issued by the insurance carrier certifying to the existence of the required insurance coverage in conformity with this clause.
- F. CAPITOL, its Board of Trustees, employees, their agents, and successors, servants, employees, and students while acting within the scope of their duties as such, shall be among the named insured in each of such policies.
- G. CAPITOL students should comply with all WIFA operation procedures including the rental agreement and any other procedures deemed necessary.
- H. Payment procedures: WIFA will invoice Capitol per student based on course enrollment and WIFA account management standards.



IN WITNESS WHEREOF, the parties hereto have themselves, or through their respective officers, or duly authorized agents, caused this contract to be executed the day, month and year first written above.

CAPITOL TECH TECHNOLOGY UNIVERSITY

A handwritten signature in black ink, appearing to read "B. Sims", written over a horizontal line.

Dr. Bradford Sims

President

WASHINGTON INTERNATIONAL FLIGHT ACADEMY

A large, stylized handwritten signature in black ink, written over a horizontal line.

Mr. Ziv Levy

Owner



ADDENDUM I  
FLIGHT TRAINING COSTS

CAPITOL and the WIFA agree the following flight training costs are in full force and effect as of the 1<sup>st</sup> day of \_\_\_\_\_ in the year of \_\_\_\_\_ until such time as revised and agreed to in writing by both parties or terminated per the requirements of the Agreement by one or more of the parties.

Flight Training Costs:

To be determined by mutual agreement prior to the commencement of pilot ground school and flight training.



ADDENDUM 1 (CONTINUED)

IN WITNESS WHEREOF, the parties hereto have themselves, or through their respective officers, or duly authorized agents, caused this addendum to the contract to be executed the day, month, and year first written above in this addendum.

CAPITOL TECH TECHNOLOGY UNIVERSITY

A handwritten signature in black ink, appearing to read "B. Sims", is written over a horizontal line.

Dr. Bradford Sims

President

WASHINGTON INTERNATIONAL FLIGHT ACADEMY

A handwritten signature in black ink, appearing to read "Ziv Levy", is written over a horizontal line.

Mr. Ziv Levy

Owner