

Report to the Board of Governors on Elizabeth City State University's Aviation Related Initiatives

Elizabeth City State University has many initiatives underway related to aviation. Some are fully functional and others are in process or are planned. Still others are to be explored to determine their feasibility. The field of aviation science and related initiatives are areas of significant focus at Elizabeth City State University and constitute one major avenue for partnering with the region to further economic development. There are several interrelated initiatives that constitute ECSU's commitment to the aviation sciences and their impact on economic development in the region.

Existing Academic Programs

The academic degree program in Aviation Science was established in 2002. Its enrollment had grown to 18 students in the fall of 2006. The present program grew from the Airways Science minor within the Department of Mathematics and Computer Science established in 1989 to an Aviation Science major with three minors in 2002 under the Department of Technology.

The Aviation Science major at ECSU consists of three concentrations: 1) Computer Science, 2) Electronics, and 3) Business Administration. Growth since 2003 has been 5-8 students each freshman class, with some attrition. With the proposed curriculum enhancements and extensive marketing strategies ECSU anticipates significant growth. They expect a 25% to 33 % increase in enrollments equaling 60-75 students by 2012.

Graduates have been hired by Raytheon, Northrop-Grumman, the Federal Aviation Administration, the Elizabeth City Regional Airport as an assistant airport manager, and the U.S. Coast Guard Aircraft Repair and Supply Center. This year three students have accepted commissioning programs in the U.S. Coast Guard as aviators. With the proposed improvements to the curriculum ECSU expects career opportunities to grow in step with the expansion of DRS Technologies, the Aviation Research & Development Commerce Park, and Blackwater USA.

Aviation Science students are prepared to enter entry-level careers or to begin graduate studies in aeronautics or other related fields upon graduation. After graduating, the students are equipped to pursue careers in the numerous aviation-related technical and management professions in both the public and private sectors. Specific job opportunities include air traffic management, aircraft manufacturing, commercial airline operations, FAA facilities maintenance, and airport management and aviation safety. This carefully structured course of study will open the way to being a vital part of the national air space system, aeronautical production, aviation maintenance, and other associated lines of work, as well as engaging research programs aimed to furthering aviation.

ECSU currently has non-traditional track students employed at Sikorsky and DRS. Students also have internships at the Aircraft Repair and Supply Center maintaining the HU-25 Falcon jet aircraft. For summer 2007 ECSU has:

- 1) Students at the Manteo, Edenton, and Elizabeth City airports.
- 2) A student within the computer science minor at the University of Kansas working on remote sensing research.
- 3) Three rising seniors at U.S. Coast Guard officer candidate summer training.

Current Facilities and Equipment to Support the Program in Aviation Science

Presently located in Dixon Hall Department of Technology, the Aviation Science core curriculum is taught in one classroom and one laboratory. Students pursuing minors share the laboratory resources within the Department of Technology. These students have limited resources: a table top wind tunnel and a flight simulator operating a Microsoft program. Those resources are used to teach aerodynamics and to

teach students interested in flight training. With the proposed growth and support in the program, it is envisioned that ECSU will acquire the following state-of-the-art educational tools:

- 1) Flight simulator capable of FAA Level 3 Certification, providing students with the opportunity to log flight time and complete checkrides
- 2) Weather station
- 3) Wind tunnel
- 4) Specialized audio-visual aviation library to assist students in advanced topics

For the development of avionics, flight, and aviation technical management programs, the following equipment will be required:

- 1) Appropriate number of aircraft for flight and maintenance training
- 2) Shop equipment and tools for aircraft maintenance training
- 3) Ground support equipment
- 4) Laboratory test, inspection, evaluation, and measurement equipment
- 5) Airframe system trainer
- 6) Aircraft avionics system trainer
- 7) Cockpit instrumentation system trainer
- 8) Aircraft basic electricity panel
- 9) Landing gear system trainer
- 10) Aircraft communications trainer
- 11) Powerplant system trainer
- 12) Test stands
- 13) Radar

Planned New Facilities and Equipment to Support the Program in Aviation Sciences

Available New Site Location for Building and Program

As part of the Aviation Research & Development Park at the Elizabeth City-Pasquotank County Regional Airport, Elizabeth City State University will be deeded 20 acres for further development of aviation-related initiatives. The parcel of land is currently undergoing a number of required studies including environmental impact studies. When those studies are complete (estimated to be November 2007) the Board of Governors will act on the gift of land to ECSU.

If the aviation building is funded by the General Assembly, and the land at the Research and Development Park is acquired by the University, ECSU plans to place the building on that 20- acre parcel. This will provide an opportunity for further expansion of aviation sciences both in terms of concentrations or degree programs and the equipment that can be housed there in support of the programs.

The Aviation Science program will best serve the students, the community and the State when aircraft become part of the curriculum. As per the ECSU Feasibility Study of July 8, 2006 conducted by Perot Systems Government Services, a four-year degree pilot program and maintenance management program is highly feasible and has high merit.

Additional Academic Programs in Aviation Science

As space and equipment in support of the program expand, ECSU will explore the feasibility of adding additional concentrations or degree programs. Based on the needs of the region and the companies that are likely to expand or relocate, the following programs will be explored as minors or concentrations in Aviation Science. As the program grows the minors can become majors or separate degree programs. Based on ECSU's current personnel and resources, the University is capable of developing these minors. Research indicates positive job prospects for graduates in the minors listed below:

- Commercial Flight
- Avionics
- Aviation Computer Science
- Aviation Management (with concentrations in Business Administration, Airport Management, Airline Management, International Air Transport Management, Aviation Human Resources Management)
- Aviation Technical Management (with Airframe and Power Plant certificate)

On going feasibility analysis will focus on the needs of the companies, governments, and military entities in the regions and the potential relocation of companies to the region as well as the demand by students for the programs and the job prospects of potential graduates of these programs.

Current and Potential Academic Partners

The College of the Albemarle

COA is a community college that has offered Ground School. Discussions and collaboration with COA continue. ECSU is positioned to take the lead in aviation and will continue to support any community college with aviation initiatives. The University is especially eager to take students with A&P licenses into its Aviation Technical Management BS degree program.

North Carolina State University

The Department of Technology's Engineering Technology program, which supports the technical side of the Aviation Science program, can collaborate with North Carolina State University on Aerospace Engineering-related projects and initiatives. NCSU currently offers a BSE in Mechanical and Aerospace Engineering at the Coast Guard Station in Elizabeth City, and has two master's programs available online, Mechanical and Aerospace Engineering. North Carolina State University has indicated willingness to partner with aviation initiation in the region.

Embry-Riddle Aeronautical University

The Elizabeth City campus of Embry-Riddle Aeronautical University provides undergraduate education in aviation safety, logistics, and management for active duty and retired military, civil service employees, and government contract personnel. Currently these programs are available only on the Coast Guard base.

Regional Partners

Elizabeth City State University works closely with regional entities involved in the development of the aviation initiatives in the region:

- Elizabeth City
- Pasquotank County
- Elizabeth City-Pasquotank County Airport Authority
- Aviation Research & Development Commerce Park
- Albemarle Economic Development Commission
- US Coast Guard Air Station
- Coast Guard Aircraft Repair and Supply Center at Elizabeth City

State and National Governmental Partners

The **National Aeronautics and Space Administration** (NASA) has provided fellowships for faculty. Students have been employed as a result of participating in Cooperative Education and/or an Apprenticeship Program. Elizabeth City State University will continue to have fellowships, Cooperative Education, and an Apprenticeship Program with NASA.

The **Federal Highway Administration** (FHWA) has provided funds for eight summer transportation institutes. Funding for the 2007 Summer Transportation Institute will cover the cost of ground school training—one of the first steps in training pilots. Twenty-one students will participate in this training and

take a Federal Aviation Administration (FAA) exam to indicate their mastery of this phase of aviation. The University continues to write proposals and seek funding from FHWA.

The **North Carolina Department of Transportation** (NCDOT) has provided funds for aviation internships. The University's aviation advisory board consists of members from NCDOT aviation programs.

Business Partners

Currently, Elizabeth City State University's primary business partners that are providing educational and economic support are:

- DRS Technologies
- Leer-Siegler
- VectorCSP
- Perot Systems
- TECOM LP

Flight School

ECSU is contracting Horizon Flight Center, of Chesapeake, Virginia, to conduct a private pilot ground school course during the summer and a flight school course during the fall semester. The University will continue to contract that company until ECSU becomes self-sufficient or obtains a fleet of planes and a hangar.

Leadership for Aviation Sciences at ECSU

The following initiatives for the proposed expansion of the Aviation Science program are underway:

- 1) Course, Curriculum, and Laboratory Development for the following programs:
 - a. Avionics
 - b. Aviation Management
 - c. Aviation Technical Management
 - d. Aviation Computer Science
 - e. Commercial Flight
- 2) Recruitment
- 3) Logistics and Resource Planning
- 4) Marketing
- 5) Business and Industry Collaboration
- 6) Professional Development and Certification Currency
- 7) Grantsmanship
- 8) Technical Research

The following ECSU personnel are directly involved in these initiatives:

- Dr. Cynthia Warrick, Dean, School of Math, Science, and Technology
- Dr. Mehran Elahi, Chair, Department of Technology
- Dr. Ellis Lawrence
- Dr. Kuldeep Rawat
- Dr. Akbar Eslami
- Mr. Orestes Gooden
- Mr. Paul Lange
- Ms. Lubertha James

Conclusion

Elizabeth City State University is positioned to serve as the "educational lead" for the Elizabeth City Aviation Research and Development Commerce Park which is being developed at the Elizabeth City-

Pasquotank County Regional Airport. This project will be a collaboration of Elizabeth City's aviation partners—The US Coast Guard Air Station at Elizabeth City, the ECSU Aviation Science Program, and other governmental or private agencies. The University's goal is to create certified professionals in the aviation industry.

Elizabeth City State University's Aviation Science program, along with the Elizabeth City-Pasquotank Regional Aviation Research and Development Commerce Park, has broad support from the public and private sectors. This support is in the form of student internships and prospective employment opportunities as well as research collaboration commitments. Letters of support for the project have been secured from businesses, units of government, and allies: City of Elizabeth City, Pasquotank County, Elizabeth City-Pasquotank County Airport Authority, and US Coast Guard Air Station.

Given a strong team effort and adequate funding, Elizabeth City State University is poised to meet the needs of emerging enterprises in Northeastern North Carolina. The Aviation Science program can be rapidly expanded to meet career opportunities in a field with much opportunity for the northeastern region of the State. ECSU is the only school in the University of North Carolina system with a Bachelor of Science in Aviation. It should be noted that the birthplace of powered flight at Kitty Hawk is within ECSU's twenty-one county region. With the growing regional industry partnership resources, legislative support, and new leadership, ECSU can be relied on to build the leaders that can pilot the future of aviation in North Carolina and the nation.

To implement this vision there will need to be careful analysis and feasibility studies for each step in the initiative to make sure the combination of resources, leadership, cooperation, industry partnerships, and opportunity for graduates of the programs are present.