Cadets take to the skies without ever leaving the ground

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PHOTO BY KEN WRIGHT

Eight new flight simulators are significantly enhancing cadet education and providing cadets another exciting opportunity to experience the magic of flight at the United States Air Force Academy.

Under the direction of Lt. Col. Brian Anderson, 50th Education Squadron commander, the Air Warfare Laboratory utilizes eight new Frasca-241 flight simulators, modeled after the USAF T-6 Texan II Trainer. They replaced four older Singer-Link T-4 cockpit instrument trainers, which were first introduced at the Academy in 1975.

The new Frascas are cutting-edge digital computer technology machines that truly put cadets in the cockpit of one of the most advanced simulators in academia today.

"The new simulators are phenomenal," C1C Weston Kissel said.

Complete with high resolution visual displays, the simulators are designed to support all Academy courses.

"The aviation education that we can provide USAFA cadets due to Frascas' dedication to reasonably priced, cutting edge simulator technology is amazing," said Lt. Col. Jim Baize, who oversees the Air Warfare Laboratory.

The simulators' advanced visual display currently simulates the Academy's airfield, the Colorado Springs airport, and the Pikes Peak region. In the future, the display may also be programmed to include areas of strategic interest like Baghdad, Kabul, and other real-world locales.

Two sets of four simulators are arranged in each of the laboratories simulator bays.

"In each room, all four simulators are networked," Baize says. "What this means is that cadets can enter a simulated 'virtual world' and can participate in the same mission profile."

"This is a quantum leap in simulator technology," Baize said. "Modern avionics, networked simulators, realistic weather depictions and programmable system malfunctions give the Military Strategic Studies Department capabilities that we never had before."

The older Singer-Link T-4 cockpit instrument trainers had no visual display, used round dials and tube technology, and were completely mechanical.

"If you crashed the T-4 simulator into the ground, a piece of metal hits another piece of metal. If the metal is broken, the simulator is actually broken," said Don Smith, a retired Air Force master sergeant who's been working in the Academy's simulator lab since 1995.

When the Singer-Links would crash, repairing them would take anywhere from six to 12 hours to repair.

"They'd always fail at the most inopportune times," Smith said.

As the older simulators became more and more obsolete, maintaining the mechanical trainers became a sizeable job.

"I've been fortunate … because I learned how to use both the Link sim and the Frasca sim, but hands down the Frasca is a lot more fun," Kissel said.

The new Frascas, which cost about $250,000 each, are beginning to change the way many Academy classes are taught. The simulators provide cadets a unique combination of educational reinforcement, practical experience and training.

The Frasca simulators have the ability to simulate a cross section of current USAF aircraft. Cadets routinely simulate flying F-16 500 foot low-level missions at 540 knots as well as F-15 missions at 50,000 feet and mach 2.

"The courses that we offer are specifically designed to set cadets up for success in flight school," Baize says. "This is a huge opportunity for them to gain aviation experience at USAFA.

In addition to the military strategic studies department, which incorporates the simulators as part of the core-course curriculum, the physics and aerospace departments are exploring ways to include the Frascas in their planned coursework.

Lt. Col. Tom Spicer, '80, brought his physics 315 class to the lab to fly some of the basic fighter maneuvers they had been studying. After listening to a short briefing and reviewing their flight cards, cadets took to the air, experiencing what they had only previously learned in the classroom.

Academy faculty like Spicer are constantly challenging themselves to find new ways to reinforce educational concepts through aviation simulation.

The simulators are a great motivational tool – reminding cadets that the Air Force Academy trains future Air Force pilots. These simulators dramatically show the cadets what aviation is all about.

"In 30 minutes we can show a cadet how to do a takeoff and return to the airfield for a safe landing – a huge cadet confidence builder," Baize said.

Current plans also call for all basic cadets to fly in the simulators during this summer's Basic Cadet Training.

Like most Academy programs, the Frasca program provides a leadership laboratory for cadets to learn how to use the simulators – and then teach other cadets.

"We teach cadets how to operate the simulators, teach them the basic principles of instruction, then challenge them to serve as simulator instructor pilots," Baize said.

Cadets who posses a high interest in using the simulators many times also express an interest in becoming a cadet air and space instructor.

"The Frasca allows me, as an instructor, to manipulate weather, wind, aircraft systems, the airport lighting and simulated threats such as AAA and SAMs," C1C Joseph Yasunaga said. "The best feature is that I can put a cadet on an ideal final approach in a matter of seconds, allowing cadets to practice nearly 20 landings in an hour. I don't have to worry about my students crashing. I simply reset them, and I can graphically show them what they did wrong."

The Air Warfare Laboratory is open to all cadets. They can walk in and fly the simulators any time that the simulators are not otherwise scheduled. Currently cadets are thrilled with the availability of the new simulators as well as the superb instruction provided by the cadet simulator instructors.

"If I have an extra hour between classes, I can stop and do some touch and goes, practice a couple of Cuban 8s and Split-S's, do some low level-formation flying, and then be off to my next class," Yasunaga said.

Air Force Chief of Staff General John P. Jumper, AETC/CC General Donald G. Cook, Commandant of Cadets Brigadier General Johnny Weida, '78, and even Sen. Wayne Allard have stopped by the laboratory to see what all the excitement is about.

Cadet aviation instructors also facilitate a program called Operation Fledgling, which exposes the basic elements of flight to doolies who have never been in the cockpit before.

"A lot of these cadets never have been exposed to flying, much less learned about the information provided by instruments or how the controls' surfaces are manipulated by what they do," Weston said.

The mission of the 50th Education Squadron is "to produce officers schooled in the application of air and space power." Using a model based on education, experience and training, the simulators provide an important addition to the cadet experience. Students are taught rules, theory, safety awareness and crew resource management as part of their "education." Mission planning and decision making in the simulators comprise their "experience." Reviewing and completing checklists, taking off and landing in the simulators provide "training."