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NPS Answers Air Force's Call for a Continuum of Learning

MC2 Nathan K Serpico | November 20, 2018



Senior Air Force leaders and potential students explore NPS' military satellite communications lab during a visit to campus to explore the university's proposed approach to the USAF's new Continuum of Learning, a certificate program designed for the service's critical Nuclear Command, Control and Communications (NC3) professionals.

The U.S. Air Force Education and Training Command is charging forward on the implementation of a paradigm shift in the way Airmen are educated. And the Naval Postgraduate School stepped forward with a program tailor made to one of their most critical communities, Nuclear Command, Control and Communications (NC3) professionals.

“I’m very excited in the potential that these educational opportunities could bring for both the Air Force, as well as NPS,” said Col. Timothy Sands, Senior Air Force Officer and Associate Dean of the Graduate School of Engineering and Applied Sciences. “The resources are all already here at NPS, but for this program we hand-picked certain courses that we felt best supports NC3 and their mission.”

The result is a four-course, graduate-level certificate program including coursework in space technology and applications, military satellite communications, and a two-part NC3 systems course.

Senior leaders from the Air Force’s nuclear enterprise wanted an up-close preview of exactly what was in store for future NC3 professionals through the program, so a cohort of them, joined by potential students, spent a week on the NPS campus to get a better understanding of the program.

“We got an opportunity to meet with various people and discuss these educational opportunities,” said John Langston, Branch Chief of Training and Analysis for NC3. The group explored the classes students would take, the distance learning program and more.

“We even had the opportunity to go out with Dr. James H. Newman, an actual former astronaut, to participate in a high-altitude balloon launch,” Langston added. The NC3 certificate program offering he saw is “a no-brainer,” said Langston, who added NPS can be a catalyst in creating Air Force members who are better trained and better educated in this critical field.

The cohort of Air Force leaders was also introduced to a novel method of distance learning designed to give NC3 students a more individually-tailored delivery of educational material, coined Curated Heuristic Using a Network of Knowledge (CHUNK) learning.

“We personalize [the information] to the user. When you establish a profile, you can give the system information about interests and it will tailor the content – videos, PDFs, PowerPoint slides, etc. – presented to you on a certain subject that go with your interests,” said Dr. Raluca Gera, principal investigator for CHUNK. “It’s personalized because the education is short, focused, and to the point and the more the user interacts by rating the material, the more the system learns about what material format and subject is preferred.”

Sands describes this function as a user listing football as an interest and CHUNK pulling up a video of missile trajectory theory explained in the same sense as a quarterback throwing a football down the field. Having these complex subjects and theories explained with relevant analogies will help users to comprehend the material. Also, all of the information in this expanding database is material that has been reviewed and validated by subject-matter experts before it is pushed out to the students.

Although the program will be centered around distance learning to allow Airmen to continue work at their command, there will be opportunities for intense one to two-week hands-on training that brings the students to campus, or another location, where they can physically use the equipment that relates to the lesson they are currently studying.

“We want these students who have spent all this time studying a system to be able to come to the area and actually work with the systems,” said Sands. The hands-on balloon launch was one example of exactly that, he added.

“We gave [the cohort] a very condensed course over the mechanics of how to fly the balloon, how to transmit and read the information it was relaying, and how to recover it,” Sands explained. “The following morning, we had them actually launching, gathering data, and recovering the balloon.

“We also have a fully functioning satellite that, except for the thrusters, has everything that an orbiting satellite has, so the people who maintain those orbiting satellites can come here first to test fixes for anomalies,” continued Sands. “No university on the planet has a fully-functioning military satellite in an orbit of zero feet, meaning it is hooked up to a realistic command and control system, that’s identical to what they use at the satellite communication hub at Naval Air Station Point Mugu.”

While this initial immersion week is a new approach, Sands has big plans on how to use a similar model.

“I’d love to be able to expand or create more of these different immersion weeks available to the students,” he said. “Anything where we can bring students out and have these engaging experiences where they can see how their piece that they’ve been studying for years fits into the whole picture.”

The Air Force Continuum of Learning model was originally spelled out in the service’s 2013 Flight Plan for the Nuclear Enterprise, seeking to integrate Airmen’s education, training and experience in order to allow them to learn anytime, anywhere throughout their careers, ultimately creating a culture of lifelong learning.

“We’re growing future Air Force leaders and we need them to be more knowledgeable, stronger, and lethal,” stated Langston. “This is one of those means of getting them there.”

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