DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY (AETC)

OCT 19 2018

Col Evan L.Pettus
Commandant, Air Command and Staff College

LtGen Daniel O'Donohue, USMC
Director, Joint Force Development
Joint Staff J7

Dear General O'Donohue

Sir, below is an assessment of the Air Command and Staff College's (ACSC) professional military education (PME). This assessment provides insights into the college's focus on recruiting quality faculty, conducting research, providing outreach, developing warfighting concepts, and producing instructional innovation.

In February 2015, the Air Command and Staff College began a major transition to ensure the relevance and professional quality of our institution's PME. This transition began with a major revitalization of ACSC's center of gravity, our faculty. When the process started, ACSC had 96 full-time faculty of which 26 were PhDs and approximately 55% were resident graduates of intermediate level colleges (ILCs). It has been a struggle, but today we have 117 full-time faculty with six new faculty to arrive by January 2019. This growth in faculty was complemented by concerted effort to simultaneously increase the quality of the faculty. As of 1 October 2018, we have increased the number of faculty with PhDs to 54 and all but one of the military faculty are graduates of ILCs. Additionally, the promotion rate to Lieutenant Colonel for military faculty has increased from 25-40% to 100%. The faculty has also excelled in publications. They have published numerous articles in peer review journals and recently signed 30 book contracts.

Building upon the foundation of a quality faculty, ACSC initiated a Faculty Research Focal Program (FRFP) to facilitate faculty members' pursuit of major research and publishing efforts by providing significant blocks of uninterrupted time in which to focus on specific publication efforts. Faculty members engaged in the FRFP are excused from other administrative responsibilities and have a reduced teaching load expectation. This program has enabled the faculty to stay current in their fields of expertise and conduct research in a host of fields including: robotics, C4ISR, Space, the electromagnetic spectrum, cyberspace, and multi domain synchronization. The FRFP has also permitted faculty conduct operational research in such locations as Iraq, Qatar, Kuwait, Djibouti and Tajikistan.

Faculty outreach has concentrated on sending faculty members to forward operational locations to gain professional insights into current and future military operations. One of the key mechanisms ACSC has used is the Africa Military Education Program (AMEP). This program was created by Congress to provide PME support in sub-Saharan Africa controlled by State

Department, Africa Bureau. Support efforts focus on defense education institutions such as war colleges, staff colleges, select officer schools, and military academies. AMEP has enabled more than two dozen military and civilian faculty members to travel to and become immersed in a number of African countries including: Botswana, Burkina Faso, Chad, Ghana, Niger, and a host of others.

ACSC has also established long-term outreach relationships with the NATO School in Oberammergau, Germany, the Führungsakademie in Hamburg, Germany, and the Polish War Studies University in Warsaw, Poland. ACSC's relationship with the NATO School consists of a faculty exchange designed to implement NATO's Comprehensive Operational Planning Directive in exercises conducted in Germany and the United States. ACSC's outreach with the German Führungsakademie consists of two parts. In the first part, students and faculty from ACSC travel to Hamburg and participate in an exercise concentrating on the employment of airpower in a NATO operational environment. During the second part, students and faculty from the Führungsakademie travel to Maxwell AFB and participate in futures exercise designed to determine operational requirements for the 2030 timeframe. The outreach with the Polish War Studies University is similar to the Führungsakademie exchange with Polish and American students and faculty conducting exercises based on future NATO operational environments.

In terms of developing warfighting concepts, ACSC has been at the forefront of Space, Cyber, and multi domain operations. In 2016, a team led by an ACSC faculty member won four Secretary of Defense level awards for innovation in Space. In 2018, a Cyber team from ACSC won the 912 Cyber Challenge Competition run by the Atlantic Council. It is important to highlight that ACSC achieved first place in this competition over elite schools such as Johns Hopkins and Georgetown. Additionally in 2018, ACSC won the Air Education and Training Command's (AETC) award for innovation in joint warfighting and multi domain operations.

ACSC has also developed several important warfighting concepts involving strategic, operational, and component level design. These concepts have been and are currently being employed by JSOC, CENTCOM, EUCOM, AFRICOM, PACOM and DTRA. Additionally, the State Department is beginning to use the ACSC strategic design model to assess future international policies. ACSC is also developing future concepts to further a comprehensive understanding of multi domain operations. One of these concepts is the continuum of domains theory. This theory advocates a six domain construct consisting of the electromagnetic spectrum, space, air, land, maritime, and human domains designed to gain access to critical maneuver spaces and exploit interdependencies between an adversaries domains. In support of this construct, ACSC is developing methodologies to operate in contested and degraded operational environments. These methodologies include: dynamic bandwidth allocation, maneuver between gateways, and creating deep neural networks for synchronizing multiple domains and decision making.

ACSC has also made a significant investment in exploring instructional innovation. The college's curriculum has significantly increased academic rigor in scholarly reading, research, and most importantly writing. Additionally ACSC, has created an enhanced collaborative environment for students and developed a federated War Theory course that draws the best faculty from across the teaching departments.

In addition to this, ACSC has established three concentrations to examine more incisive modes of education. These concentrations are the Schriever Scholars, School of Advanced Nuclear Deterrence Studies (SANDS), and the Multi Domain Operational Strategist Concentration (MDOS).

Initiated in 2018 at the request of the Commander, Air Force Space Command, the Schriever Scholars focus on providing select officers advanced education in Space theory, planning, and operations. This concentration consists of 13 hand selected officers from the Air Force, and Navy. The concentration's outcome is producing broadly educated, well-rounded military Space professionals ready to integrateSpace into national policy and multi-domain operations. The students conduct visits to the White House, Pentagon, DARPA, and the NRO and are key participants in the Schriever Wargame series.

Sponsored by the Air Force Strategic Command in 2018 the SANDS concentration consists of 13 students and focuses on advanced nuclear deterrence planning and operations. The concentration's courses examine strategic targeting, governing directives, nuclear effects, and conducts a nuclear planning exercise. Students' experiential learning consists of visits to the Trinity Site, Nuclear Weapons Center-Scandia, Los Alomos, and Pantex.

ACSC's oldest concentration is MDOS. This concentration began in 2013 and was developed specifically to investigate future curriculum and advanced instructional methodologies. The concentration is composed of highly qualified students that must volunteer and compete to enter the concentration. The total number of students in the MDOS concentration each academic year is 28. Since its inception, this concentration has gained a national reputation for producing highly qualified warfighting graduates. The graduates have gained recognition for performance from key stakeholders including: GEN Nicholson, former ISAF Commander, Gen Wolters, USAFE Commander, and Lt Gen Harrigian, former AFCENT Commander.

The major tenets and lessons learned from MDOS are as follows:

- The MDOS exams require collective and individual student efforts. The collective effort teaches collaboration and the individual effort forces students to judge collective thought and think independently.

- Opportunities are created for students to lead peer level planning and operations teams throughout the entire academic year and feedback is provided on their leadership. Additionally, ALL discussions during seminar sessions are Red versus Blue Team. ALL exercises are also Red versus Blue Team. This is designed to teach 360 degree analysis. As the students become accustomed to Red versus Blue, the faculty then introduces a student led Green Team to provide interagency, national, and multinational perspectives.

- MDOS uses spiraling education with approximately 75% of the curriculum focused on hands-on application. The students conduct their readings as homework, are introduced to the application of theories in a plenary or seminar session, and develop products based on the theories. Students are asked to assess the strategic environment and assess the

operational implications. They do this by examining the global environment from Red and Blue perspectives to gain insights on what will affect their adversary and identify adjacent geographic combatant command, functional combatant command, interagency, and multinational supporting requirements. Students use this methodology throughout the entire planning process and produce both strategic and operational designs.

- ALL exercises incorporate peer or near peer adversaries and the operational environments are rotated around the globe to present the students with ever increasing challenges based on disruptive technologies expected for the 2030 timeframe.

- The final MDOS course is a 10 week comprehensive multi domain exercise that takes the students through the planning, crisis action, and execution cycles. The scenario is set in the Middle East with both allies and adversaries possessing nuclear weapons, hypersonic weapons, quantum computing, directed energy weapons, satellites and other advanced technologies. Students are expected to develop strategic and operational approaches, conduct the JOPP, self-divide their teams into Red and Blue Teams, wargame, and develop a plan. After the students develop a plan, the faculty gradually changes the operational environment. This is conducted to assess whether the students can anticipate, adapt, and respond to complex, evolving environments.

In summary, ACSC's flight plan has been to acquire a high caliber faculty, ascertain the college's strengths, adjust the curriculum, evaluate the college's changes and sustain the momentum. We are aggressively pursuing a highly innovative education for our students and qualitative relevance for key Air Force and Joint stakeholders and although ACSC has enjoyed some hard earned successes, we still have a tremendous amount of work to do.

If you have any questions concerning our college, please let me know or contact Dr. Jim Forsyth, Dean, ACSC.

Very Respectfully

EVAN L. PETTUS
Colonel, USAF